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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and to improve the character of the service rendered to the public.

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THE WORLD'S GREAT CANALS.

"Great Canals of the World" is the title of some data prepared by the Treasury Bureau of Statistics, for publication in the forthcoming volume of the Monthly Summary of Commerce and Finance. The artificial waterways which may properly be termed ship canals, are nine in number, viz.: 1 The Suez canal, begun in 1859 and completed in 1869; 2. the Cronstadt and St. Petersburg canal, begun in 1877 and completed in 1890; 3. the Corinth canal, begun in 1884 and completed in 1893: 4. the Manchester ship canal, completed in 1894; 5. the Kaiser Wilhelm canal, connecting the Baltic and North Seas, completed in 1895; 6. the Elbe and Trave canal, connecting the North Sea and Baltic, opened in 1900; 7. the Welland canal, connecting Lake Erie with Lake Ontario; 8. and 9. the two canals, United States and Canadian, respectively, connecting Lake Superior with Lake Huron. The description which is given of each of these great waterways shows that the length of the Suez canal is about 90 miles, the cost $100.000,000, the present depth 31 feet, width at bottom 108 feet and at the surface 420 feet, and that the number of vessels passing through it has grown from 486 in 1870 to 1494 in 1875, 2026 in 1880, 3389 in 1890, and 3441 in 1900. The tolls charged are about $2 per net register ton. The Cronstadt and St. Petersburg canal, which gives a passage way for great vessels to St. Petersburg, is 16 miles long, including the deepening of the bay channel, 20½ feet in depth, and the total cost is estimated at $10,000,000. The Corinth canal, which connects the Gulf of Corinth with the Gulf of Aegina, is 4 miles in length, 26¼ feet in depth, 72 feet wide at the bottom, cost about $5,000,000, and reduces the sailing distance about 175 miles. The average tolls charged are 18 cents per ton and 20 cents per passenger. The Manchester ship canal, which connects Manchester, Eng., with the Mersey river and Liverpool, was opened in 1894. Its length is 35½ miles, depth 26 feet, width at bottom 120 feet and at the surface 175 feet, and cost $75,000,000. The commerce on the canal shows a growth from 879,204 tons in 1895 to 1,492,320 tons in 1900. The Kaiser Wilhelm canal, which connects the Baltic and North Sea through Germany, is 61 miles in length, 29½ feet in depth, 72 feet wide at the bottom, 190 wide at the surface, and cost about $40,000,000. The number of vessels passing through it has increased from 19,960 in 189- to 29,095 in 1900, of which number 16,776 were sailing vessels. The tonnage in 1897 was 1.848,458 and in 1900, 4,282,094 tons. An additional canal connecting the same bodies of water by way of the Elbe and Trave rivers was opened in 1900. Its length is 41 miles, depth about 10 feet, width 72 feet, and cost $5,000,000. The Great North Holland canal which connects Amsterdam with the sea, cut in 1845 but deepened at a later date, has now a depth of 20 feet, a width of 125 feet at the surface. The Caledonian canal, which connects the Atlantic and North Sea through the north of Scotland, is 17 feet in depth, 50 feet in width at the bottom, 250 miles long, cost $7,000,000, and is at its highest point 94 feet above sea level. The Canal du Midi cut through France from Toulouse on the Garonne to Cette on the Mediterranean, a distance of 150 miles, is 6½ feet deep, 60 wide, and 600 feet above sea level at its highest point, and has 114 locks; total cost $3,500,000.

The American and Canadian canals at St. Mary's Falls are practically identical in location and dimensions, and are used interchangeably by vessels engaged in commerce, as convenience may dictate. The depth of the canals at the St. Mary's river is sufficient to accommodate vessels drawing 20 feet of water. The American canal was originally constructed by the State of Michigan, but subsequently taken charge of by the United States and enlarged at a cost of $2,150,000. The cost of the Welland canal was about $30,000,000, largely due to the fact that 25 locks are required in surmounting the rise of 327 feet in the distance of 27 miles. The business of St. Mary's Falls canals by far surpasses in volume that of any other canal of the world, the freight tonnage of the American and Canadian canals combined being in 1901, 24,626,976 registered tons, while the net tonnage of the Suez canal in 1900 was 9.378.152 tons, and that of the Kaiser Wilhelm canal was 4,282,094 tons.

BRITISH SHIPBUILDING.

Last year was also a record year in the shipbuilding and marine engineering trades of Great Britain. The total output of the private yards of the country was 1,732,765 tons, or nearly 200,000 tons in excess of 1900, also a record year. The new ships added to the British mercantile marine made up a fleet equal to the entire tonnage owned by France, Norway or Italy. It was half as large as the German mercantile navy, and one-third as large as that of the United States, the latter including the great fleet on the inland lakes. Figures like these do not indicate that the shipbuilding and ship owning interests of Great Britain are decadent.

The figures supplied in John White's Annual Shipping Review, demonstrate another most interesting fact, and that is that eleven steamers built last year represent one-tenth of the total mercantile steam tonnage constructed, the average tonnage of these ships being 13,650 tons. Thirty-five merchant steamers built last year had a total tonnage of 302,406 tons, an average tonnage of 8,640 tons. The disposition to increase the size of ships in the freight service is indicated by the above figures, for, wth a couple of exceptions, these steamers are primarily freight carriers, though some of them, like the Celtic, are both passenger and freight boats. In connection with the building of these large ships it is interesting to note that Harland & Wolff, the big Belfast builders, turned out the largest yearly output on record from an individual yard, 92,316 tons, and in doing so, built only eight steamers, the average tonnage being 11,540, or excluding the Celtic, of 20,904 tons, 10,200 tons each. Ireland made a great record thereby in the ship building line.

The present year promises to be another remarkable one in the history of British ship building. At the end of September last British builders had under construction over 1,400,000 tons, many of the yards having all they can do during the next twelve months.

Freight rates have not been, on the whole, satisfactory, and the great output of the yards is suggestive that they will not become so in the very near future.

WIRELESS TELEGRAPHY IN THE NAVY.

Steps have been taken by the Navy Department toward the adoption of wireless telegraphy at sea. Admiral Bradford, of the Bureau of Equipment, has asked that the armored cruisers of the Pennsylvania class have their masts and rigging so arranged that the wireless system can be introduced. This will necessitate the lengthening of the masts of the ships and the insulation of the metal rigging by the use of hemp covering for halyards. It is intended to get test sets of insrtuments of the various wireless systems now being operated. Thus far, the Navy Department has not adopted definitely any system, but the construction of the new ships is regarded as a preliminary to the adoption of a system whenever its practicability is established fully. The British navy already has a number of its ships equipped with the wireless system, but this is the first move on the part of the American navy to make use of a wireless plan.

FUTURE NAVAL SUPREMACY.

Nineteenth Century: The two power standard—equality in numbers and superiority in quality to the next two strongest fleets—has been the ideal of our statesmen. Hitherto this governing principle has insured to us the theoretical control of the waters that encircle our shores and has in ages past been the best protection of the heart of the empire. But now a change is taking place. Germany has been bitten by the prevailing love of sea strength; she has a desire for naval power which is held to be synonymous with commercial and colonizing power. With that determination, that is their birthright, the German people have issued a fiat to their ship building yards. Before the British have awakened to the possibility, a fleet of thirty-eight battleships, thirty-eight cruisers, thirty-eight smaller cruisers, and all the tentacles of four large squadrons will dominate the North Sea.

We being equal to two powers—France and Russia—what role will Germany fill? She will hold the balance of power. Her weight for or against Great Britain may turn the scale for victory or defeat. This is the vision that some students see unfolding in the future.

In the present year the six great capital powers—Great Britain, France, Russia, Germany, Italy and the United States—are devoting £83,000,000 to their fleets. As the zest for supremacy gets a firmer grip on the imaginations of these rival peoples, so the outlay will increase, and it may be that other competitors in the great naval handicap will enter the lists. Year by year the world's naval expenditure is growing, no effort that money can repay is being spared to discover new implements of destruction, and thousands of men devote their thoughts to the direction of naval fashions. As the armored cruiser of from 21 to 24 knots is the favorite of to-day, to-morrow a fiendish craft built for speed and night attack with the torpedo, above or below the surface, may be in vogue.

Amid confusion world wide, who shall prophesy? Only one point seems certain. As the ingenuity of man contrives more deadly instruments, the terror of war becomes more appalling to contemplate. Cardinal Manning, lover of peace and of his fellow-men as he was, always held that a supreme British navy was the peace preserver of the nations of the world, since its strength and ability to strike, and to strike with terrible power was as a shadow over the desires of all rulers who planned a wrong.

It is a picture we may well cherish. With it may find place for the consoling thought that the more terrible the anticipation of naval war, as fashion and science continue the contest, the less likely will be its realization. Statesmen will strive and negotiate long and earnestly before they will loose the supremacy.

ANOTHER SHIP CANAL PROJECT.

Plans for a new ship canal will be presented before the Senate Committee on Canals by General Edward W. Serrel, for the American Isthmus Canal Co., and the Isthmus Co., both corporations of New Jersey. The route for the canal proposed is from the Gulf of San Blas to the Pacific Ocean, behind the Pearl Islands, and is called the Mandigo route. It will be proposed that the company build the work under the supervision and protection of the government without any cost to the United States which will be asked to guarantee the bonds of the company. The company will propose that the government have the use of the canal free of charge for all government vessels, and if at any time the company does not do as agreed, the government shall take possession of the canal. The company asserts that it has secured a right of way. The newly suggested route is less than thirty miles long and therefore is shorter than any so far proposed. No engineering difficulties are encountered, its supporters say until a spur of the Andes is reached. This mountain chain must be pierced by a tunnel seven miles long, and the plans state that it will be 180 feet wide and deep enough for the largest ship which would go through the canal. The rock through which the tunnel would be cut is said to be solid granite. In the tunnel a trolley appliance would tow the ships. Gen. Serrel, who is at the head of the project was engineer for the Panama railroad and has acted as engineer for the government. The late R. P. Rothwell, who at one time was president of the Society of Mining Engineers and editor of the Mining Journal, thought the scheme entirely feasible and was heartily in sympathy with it at the time of his death.

AROUND THE LAKES

DETROIT.

Special Correspondence to The Marine Record:

Capt. John F. Ivers has resigned from command of the David M. Whitney, to take charge of the steamer Admiral.

There has been some talk of giving the name William McKinley to the new freighter now building for the Adams Transportation Co., of Detroit, at the Craig shipyards at Toledo.

Abram Smith & Son, of Algonac, have under way a large amount of repairs to wooden vessels. The list of vessels includes the steamers Robert Mills, Italia, Monohansett, St. Paul and Ida E., and the schooners Lizzie A. Law, W. K. Moore, Sophia Minch and Interlaken.

The national officers of the Marine Engineers' Union elected at Washington on Tuesday were: President, Geo. Uhler, Philadelphia; vice president, Evans Jenkins, Cleveland; secretary, Geo. A. Grubb, Chicago; treasurer, A. L. Jones, Detroit. Jones is secretary of lodge No. 3, and one of the most active workers of the union in this city.

The following meteorological observations are furnished by the office of the United States Weather Bureau, Detroit, for the week ending January 22nd: Prevailing wind directions for the week, southwest; highest velocity, 28 miles at 10:52 on the 18th; mean temperature for the week, 26 degrees; highest temperature, 38 degrees on the 18th; lowest, 14 degrees on the 17th.

Detroit lodge No. 7, of the Shipmasters' Association, has appointed a committee consisting of Capts. A. J. McKay, Enos Burke and Hugh McKenzie, to co-operate with Capt. George P. McKay, of Cleveland, chairman of the Committee on Aids to Navigation of the Lake Carriers' Association, in securing additions where needed, and a more satisfactory adjustment of present lights, particularly those at Southeast Shoal, Lake Erie, which are deemed too low at present.

Notwithstanding the failure of the lumber carriers to form their trust here last week, the trust movement is said to be still very much alive by the promoters. But three men stood in the way of the successful organization of the Lumber Transit Co. and overtures have already been made to them which may result in bringing them over with more favorable terms. Not much faith is placed in the agreement to maintain fixed rates on the part of the association, if conditions are not favorable for high carrying charges the ensuing season of navigation.

Plans and specifications of the new passenger and freight steamer, which is to come out for the Anchor Line in the spring of 1903, are approved by the line and the new boat will be 360 feet over all, 45 feet beam, and 28 feet deep; a propeller with about fifteen miles speed; 102 staterooms, berths built fore and aft, and the main deck and hold will carry 3,000 tons of freight. All passenger accommodations will be forward of the machinery, the crew being in the after part of the boat. The dining room will be amidship and will seat 136 persons. As soon as she is completed two more boats, duplicates, will be built, and the three will replace the India, China and Japan.

In the absence of fraud a breach of warranty in a bill of sale where the title has passed to the vendee, does not give the vendee the right to rescind the contract, return the property and bring action to recover the purchase money. Following rule in Street vs. Blay, 2 Barn. & Adol., 456. Appeal from the Circuit Court for Van Buren county, in Chancery; John R. Carr, Judge. Bill filed by the H. W. Williams Transportation Co. against the Darius Cole Transportation Co. From a decree for complainant, defendant appeals—decree reversed and bill dismissed. T. J. O'Brien for complainant and appellee. (C. E. Kremer, J. H. Campbell & M. L. Howell of counsel). F. C. Harvey for defendant and appellant. (J. J. Speed for counsel.)

A well known vesselman stated Saturday in reference to the item in a Detroit morning paper that the Great Lakes Wrecking and Towing Co. was going to control the wrecking business of the lakes, that such a thing would be impossible. Vessel owners outside of the trust, he maintained, would take an outside wrecker any time in preference to a trust outfit. The trust has stated prices which it charges for wrecking jobs and will not drop, while individual wreckers can afford to do the work cheaper and better protect the interests of the boat owners. In ordinary wrecking jobs a lighter which will carry 1,000 tons is more adequate for the work than the proposed steel wrecker, which the trust proposes to construct to station at Detroit. Robert P. Thompson, of Port Huron, is the principal in the new enterprise.

DULUTH-SUPERIOR.

Special Correspondence to The Marine Record:

The tax commission of Duluth and of the entire state of Minnesota has started to work to increase the revenue by the enforcement of certain laws and by creation of others. One of the latter is to tax grain in the elevators at Duluth. This is now being most vigorously combatted by the shippers of that territory, who say that grain in the elevators there is grain in transit, and therefore cannot be taxed. Those who are on the inside of this affair say that they might as well tax the grain in the field, in the elevator at Duluth, again at Buffalo and then at New York.

Capt. W. H. Singer, of Duluth, is now at the head of the Lake Michigan & Lake Superior Transportation Co. There are four steamers in the line, the Peerless, City of Traverse, Osceola and Jay Gould. The Peerless and City of Traverse both carry passengers as well as freight, but the Osceola and Jay Gould carry freight only. The White Line Transportation Co., of which Capt. Singer is the head, will continue its close traffic agreement with the Lake Michigan and Lake Superior line. The great advantage of this to shippers from Chicago, Milwaukee and other Lake Michigan ports is, that they may bill direct to any point on either the south or north shore. Points at which the regular Lake Michigan and Lake Superior boats do not touch are reached by the White Line boats, close connections being made for the transfer of freight for such purpose.

The steamer G. J. Grammar, building at West Superior for the Seither Transit Co., was launched last Saturday. The new boat is 366 feet over all, 346 feet keel, 48 feet beam and 28 feet deep. She will have triple expansion engines, with cylinders 20, 33½ and 55 inches, with 40-inch stroke. Steam will be furnished by two Scotch boilers, 12 feet 10 inches in diameter and 13 feet long. Mr. Frank Seither, the principal owner, is a new man in the lake trade. Two years ago he bought the steamer V. H. Ketchum from W. H. Becker and others, of Cleveland, and before that he had no boat interests. Capt. R. W. England, of Detroit, who is part owner of the Ketchum, and who has sailed her for the past two years, is at West Superior superintending the building of the Grammer for her owners. Capt. England will take command of the new ship when she comes out next spring.

According to the quarterly report of the customs office just completed there were 288 vessels enrolled at Duluth, December 31, 1901, with an aggregate gross tonnage of 388,649. At the close of the previous quarter, September 30, there were 292 vessels with a total tonnage of 385,127, which shows a decrease of four boats, but an increase in tonnage. This increase in vessel tonnage has been a feature of the reports for a number of years, and is due to the constantly increasing size of boats. A striking illustration of that fact is found in the reports of the freight carried. In 1900 there were 6,386 arrivals and clearances carrying 10,578,369 tons of freight, an average for each boat of 1,656 tons. In 1901 there were 6,374 arrivals and clearances carrying a total tonnage of 11,524,225 tons, an average cargo of 1,808 tons. Ten years ago an average cargo was 1,125 tons, and in 1885 it was 761.

The proposed vessel taxation law will deprive the state of Minnesota of an income from vessel taxation of $5,000 a year, and St. Louis county an equal amount, and nothing will be given in return. In addition to losing the taxes Duluth will lose its present prestige as a port of hail, and the state will lose the prestige and honor of having a port that has more boat tonnage enrolled at its custom house than any other on the lakes. A number of boat agents were seen yesterday, and they said there was not a shadow of a doubt that the companies would immediately transfer their boats from Duluth if the proposed boat taxation clause is allowed to stand in the bill. There is at present a vessel company owning ten of the biggest boats on the lakes, which is waiting to see what the legislature is going to do. The company will not enroll its boats at Duluth if the boats are to be taxed as personal property at their full valuation, but will register their craft elsewhere. The present vessel taxation law which has done much to give distinction and credit to Duluth as a port, something in keeping with its marvelous growth of lake commerce, was drawn up by former State Senator H. R. Spencer, in 1895. The bill was introduced in the House by Representative Neil McInnis, who worked loyally to secure its passage. Mr. Spencer, being an admiralty lawyer, felt an interest in matters relating to lake commerce. He has given much personal attention to trying to induce vessel lines to register their boats here under the law and with much success. At the time the bill drawn by Senator Spencer not a boat bigger than a tug was enrolled at Duluth. In view of the fact that the present law, which relates only to boats and other craft on international waters, applies only to Duluth, the people of Duluth cannot see what is to be gained by driving away several hundred boats that now claim Duluth as their home port.

The Masters' and Pilots' Association wants Congress to pass a law leaving to a jury of six masters and six engineers, to determine, in all cases, whether the penalty of forfeiture or revocation of license should be imposed. The supervising inspectors are strongly opposed to any such change.

CHICAGO.

Special Correspondence to The Marine Record:

Several vessels deals of large proportions are under way and will be consummated the coming week. It is said that several million dollars of outside capital is now on the market for modern lake tonnage and deals depend wholly on the question of price.

W. M. Lowrie, general passenger agent of the Northern Steamship Co., announced that the steamers "North West" and "North Land" will be placed in service between Chicago and Buffalo next season. Nearly $400,000 will be spent in improvements and Mr. Lowrie said the service would be made permanent. The ports touched along the route will be Milwaukee, Harbor Springs, Mackinac, Detroit, and Cleveland.

The Barry Brothers' Transportation Co. has issued a notice that the Kenosha, Waukegan and Chicago run would be abandoned. The steamer City of Grand Rapids which has covered that run the past season will probably run to Milwaukee or will otherwise be taken to Erie on the proposed new line. The determination of the company to give up the Kenosha route is said to have been forced by the lack of patronage.

A Philadelphia dispatch says: The Wilson Line steamship Othello is to load a cargo of 5,000 tons of agricultural implements for Russia. She will followed soon by another steamship—the Alecto—which is to take out a similar cargo of the same size. These implements consist mainly of McCormack reapers and binders, built in Chicago. The sale of American agricultural machines and implements during 1901 was the largest on record in Russia.

News has just been received here that the United States Court of Appeals of New York has reversed the District Court in the litigation between the steamers Livingstone and Grand Traverse, which were in collision on Lake Erie some five years ago as the result of which the Grand Traverse was lost. The District Court divided the loss of $50,000 between the two steamers, holding them equally at fault. The Court of Appeals now holds the Livingstone wholly to blame for the disaster, and the insurance companies having collision liability insurance on that ship must pay over the amount.

Marine men hope that the recommendation to Congress from the Secretary of the Treasury for an appropriation of $75,000 for the construction of a light tower and fog signal to replace the gas lighted beacon on Racine Reef will result in the adequate marking of this dangerous shoal. The reef lies directly in the course of all vessels trading along the west shore of Lake Michigan and in the past many have come to grief upon its rocks. The attention of Congress is directed to this matter by the Light-House Board, which states that the present beacon fails to mark properly the dangerous obstruction.

From reports received in Chicago it is learned that all of the deck load on the stranded steamer Pere Marquette No. 3, has been successfully removed, and that fully three-fourths of the deck load was in good condition. The barley cargo in the hold, however, is giving the company some trouble. It has been found that is was badly soaked with water, and as a result it is swelling and threatening serious results to the structure of the boat. After becoming wet it froze solid, and in that condition it is found very difficult to get it out and dump it overboard. The No. 3 is said to be lying in the same position as during the past few days, with a prospect of floating when her cargo is all removed.

Grain in elevators is in transit, and is now subject to local taxation, according to the decision of Judge Small in the famous case of Bartlett, Frazier & Co. against Theodore Green, township collector, and W. W. Gifford, county collector. The decision was based upon the Supreme Court's opinion Last spring the assessor at Joliet levied a tax on $77,810 worth of grain in the Midland elevator. The assessment was resisted and an application made for an injunction. While the matter was pending Bartlett, Frazier & Co., the owners of the grain, were summoned before the board of equalization to show why the assessment should not be made. The decision just announced upholds the injunction and indorses the contention of the plaintiffs that grain in elevators is not taxable. An appeal will be taken to the Supreme Court.

Thomas Brown, eighty-five years old, for many years identified with lake traffic as owner and captain of vessels, died of old age on Tuesday morning, at his residence, No. 75 South Morgan street. Capt. Brown was born in Scotland, and came to the States in 1840, settling in Chicago. He was one of the California "'49ers," but remained there only a year. He engaged in lake transportation business on his return. He owned the boat Mears, and later, as captain, sailed the lake-going vessels Baer and Warrington. He was the partner also of John and Redmond Prindiville in the lumber business. For thirteen yars he was harbormaster. Capt. Brown was a life member of St. Bernard Commandery and of Cleveland lodge, No. 211, A. F. and A. M. His funeral on Thursday from the house to Rosehill, will be under their auspices.

CLEVELAND.

Special Correspondence to The Marine Record.

The first of the two steamers building for Capt. John Mitchell at the local yard will be launched a week from next Saturday. She will be named for W. H. Gratwick, of Buffalo, one of Capt. Mitchell's business associates.

The steel steamer John W. Gates, owned by the Pittsburg Steamship Co., carried 149,442 net tons of iron ore in nineteen cargoes, of 7,865 net tons for each cargo. A sister ship, the Edenborn, carried 8,265 net tons, or 7,380 gross. The tow barge Manila carried 7,398 gross tons.

The local managers of the Great Lakes Towing Co. are still in session in this city and will likely stay through the week. They held another meeting on Wednesday morning, but did not touch upon any questions of vital importance, other than those which pertain strictly to the management of the boats.

On Wednesday night the local lodge of L. T. P. A. gave a ball at the Chamber of Commerce Hall, which was a brilliant affair. The hall was crowded during the evening, and the festivities were prolonged until an early hour Thursday morning. From 10 o'clock on an elaborate luncheon was served in the dining room on the top floor, and in this the local lodge proved itself an excellent host.

Capt. A. B. Wolvin, general manager of the Pittsburg Steamship Co., visited here this week. On Wednesday he said that he did not know when the question of lake freights would be taken up. The matter, he said, is in such shape that the chartering may be done in a week or that the season rates may not be fixed for a month. As yet the freight situation has only been discussed in a general way.

The annual meeting of the stock-holders of the Wilson Transit Co., was held on Tuesday at Fairport, which is the port of hail of the boats of that fleet. The result was the re-election of the directors and the officers as well. The directors are as follows: W. D. Rees, J. E. Upson, George L. Quayle, Robert McLauchlan, and J. J. Sullivan. The directors elected the following officers: J. E. Upson, president; Robert McLaughlan, vice president; H. D. Goulder, secretary; A. W. Thomson, assistant secretary and treasurer.

Fred Harmon was not exonerated by the local lodge of the Marine Engineers' Beneficial Association at the all night session Saturday night. That report was placed in circulation Sunday, but according to the officials of the association he was found guilty on every charge and he was suspended indefinitely from the association by a vote of 58 to 7. Charges were preferred against Harmon by President McAuley and Business Agent Wilcox, of the local lodge, for going to work last spring when the other members of the association were on a strike.

The following meteorological observations are furnished by the office of the United States Weather Bureau, for the week ending January 22nd: Prevailing wind directions for the week, southeast; highest velocity, 48 miles from the southwest on the 21st; mean temperature for the week, 27 degrees; highest temperature, 40 degrees on the 18th; lowest, 08 degrees on the 17th. Sunrise and sunset data computed for local time: January 24th sun rises 7:20, sets, 5:05; January 27th sun rises 7:17, sets, 5:08; January 30th sun rises 7:15, sets 5:11.

The election of Evan I. Jenkins to the second vice presidency of the Marine Engineers' Beneficial Association will probably mean the creation in this city of the office of the M. E. B. A. for the chain of lakes. It was the intention of the organization to create the office of second vice president, a salaried officer, who should have charge of the interests of the men on the lakes. The intention was fully carried out, and Mr. Jenkins is the incumbent. He has been prominent in the affairs of the organization here for the last few years, and last season was the president of the Cleveland lodge.

In the United States Circuit Court of Appeal at Boston it was decided that the Cuddy Mullen Coal Co., of Cleveland, was not entitled to a maritime lien for $20,230 against eight steamers of the Ogdensburg Transit Co. The suit was begun for coal furnished in 1898 under a contract with the Ogdensburg company which later failed. The court, in a majority opinion, held that there was nothing in the dealing to weigh against the formal written contract, which showed that the coal was not supplied upon the credit of the vessels, but rather upon the credit of the company, and that the Ohio revised statutes relating to liens on vessels was limited to domestic vessels.

The stockholders of the Lake Shore Transit Co. and the Gilchrist Transportation Co., held their annual meeting on Tuesday. Both of the companies voted to increase their capital stock. The stock of the Lake Shore Transit Co. was marked up from $500,000 to $800,000 and the stock of the Gilchrist Transportation Co., which was $1,000,000 is now $2,000,000. All the old officers were elected as follows: Lake Shore Transit Co., J. J. Gilchrist, president, treasurer and general manager; R. E. Schuck, vice president and C. P. Gilchrist, secretary. Gilchrist Transportation Co., J. C. Gilchrist, president, treasurer and general manager; R. E. Schuck, vice president, and A. J. Gilchrist, secretary.

The annual meeting of the executive committee of the Great Lakes Towing Co. was held here on Wednesday. Capt. James Davidson, of Bay City, A. B. Wolvin, of Duluth and L. M. Bowers, of Binghamton, N. Y., who represent the Rockefeller interests, attended the meeting. The regular quarterly dividend of 1¾ per cent., payable February 20, was declared. The big steel lighter which the company has decided to build was not ordered, but the contract will be closed in a short time. The lighter will probably be built by the American Ship Building Co. and the work will be done at Milwaukee. No action was taken in regard to adding tugs to the wrecking fleet, but it is understood that the matter has been referred to President Newman and General Manager Sinclair. The annual meeting of the stockholders of the company will be held at Jersey City, Feb. 19.

The steamer Superior, which will be used as a supply boat by the Pittsburg Steamship Co. in the "Soo" river, will have a large refrigerator and elevator.

Appointments of engineers for the steamers of the Pittsburg Steamship Co.'s fleet have been practically made and only a few second engineers' berths remain to be filled. Chief Engineer Hayes has received checks for the bonuses that will be paid the men for the past season's work, but they will not be distributed until the engineers start to work. The men on the small steamers will be paid $77 and the men on the steamers of the largest class will be paid $100. The boats were late in starting out last spring and the men would have received more money if they had put in a full season, as the bonuses are based on their earnings. The Oilers and Firemens' Union has fixed a schedule of wages and a demand of $1.75 per day is made, which is an advance of 25 cents over the opening rate a year ago. Chief Engineer Hayes has offered the men $1.50 and he will not pay the advance until he has heard from General Manager Wolvin. Only a few men are wanted now and it may be some time before the matter is settled.

Capt. W. W. Smith, marine superintendent of the Pittsburg Steamship Co., is distributing the bonuses among the masters and all the captains will get extra wages for last season's work except five. The bonuses of the masters of barges range from $73 to $92. The lowest amount paid to the masters of steamers is $103. The men on medium sized steamers will get $132, and the checks for the skippers on the steamers of the largest class call for $152. Capt. Smith has heard from all the masters of the fleet and most of them will be in the employ of the company next season, but some changes will be made. Capt. Frank D. Root, who is one of the most successful skippers on the lakes, has resigned to accept the position of local manager at the "Soo" for the Great Lakes Towing Co. Capt. Root was master of the steamer Mataafa last season and for a number of years sailed steamers of the Minnesota fleet. Capt. E. T. Rattray, master of the big steamer Rensselaer, has also resigned and he will sail one of the new steamers that are building for the W. W. Brown syndicate. Capt. G. W. Pierce, of the steamer La Salle, has got another ship and will not be in the employ of the company next season.

BUFFALO.

Special Correspondence to The Marine Record.

Great inconvenience has been experienced in moving vessels this week owing to a strike among the tug firemen. It is expected that the question at issue will be settled in a few days, and probably at the tugmen's convention now being held in Cleveland.

A meeting of lake passenger men will be held in Buffalo January 24 to consider the question of abolishing the use of commissions on lake lines. The matter was to have been discussed at the last meeting of the Central Passenger Association but the withholding of railroad passes kept the steamboat men away. A committee consisting of the general passenger agents of the Lake Shore, Big Four, Wabash, Nickel Plate and Grand Trunk railroads will be appointed to attend the meeting in Buffalo.

The oil tank steamer to be built by the Craig Ship Building Co., of Toledo, is for the Sun Co., of Pittsburg, which company recently purchased the steamer Paraguay for Texas oil trade. The new vessel is to a duplicate of the Paraguay. Edward Gaskin, of Buffalo, who represented the Pittsburg interests in the purchase and rebuilding of the Paraguay, is also to represent them in the construction of this vessel. Mr. Gaskin was recently appointed Buffalo representative of the British Corporation for the survey and register of ships.

Some of the older and larger lake lines are anxious to sell off their smaller steamers, as comparisons of their earnings with the earnings of the newer steel liners make a very poor showing. The Western Line will try to sell the Vanderbilt and Montana, and the Anchor Line is offering about half a dozen of its smaller steamers, to be replaced with new ones as soon as disposed of. Still there are few buyers as yet, for it is confessed that they are too valuable to go for lumber carriers, and that is what the demand is for just now. Some prospective buyers have offered for certain of these steamers what they felt they could pay, but found that it was scarcely half what was asked for them. The Union Transit Line is short of tonnage, especially since the sale of the Avon, and is likely to buy something during the winter. But for the rather high prices asked for the vessel property there would be considerable transfers of ownership this winter.

It is computed that the average of coal freight rates from Buffalo to the upper lakes were practically the same during the past two seasons, although the fluctuations were quite different. The regular rate to Chicago opened at 40 cents last season, ran up to 75, dropped to 40 again, closed at 60 and averaged 53 3-10 cents. In 1900 the opening rate was 75 cents, which was the highest and also the closing rate, though as low as 30 cents was also paid. The average was also 53 3-10 cents. Milwaukee fluctuated the same for the two seasons, but owing to different variations of quality, the averages were 53 2-10 cents last season and 52 4-10 cents in 1900. The Duluth rate opened at 40 cents last season, was as low as 30 and closed at 60, the highest rate. The average was 37 8-10 cents. In 1900 the opening Duluth rate was 50 cents, 30 cents was touched during the season and the close was at 75 cents, the highest rate, with an average of 41 3-10 cents. Owing to the paying of an extra rate to Chicago South Branch last season the average to that point was 64 cents. This is the summary of a leading broker, which ought to be practically the same for the other brokers.

PORT HURON.

Special Correspondence to The Marine Record:

Capt. Hitchcock, of Buffalo, visited here a few days on marine business.

The marine engineers have issued very handsome invitations for their ball and banquet to be held at the new armory on Wednesday, February 5.

Capt. Colin McLaughlin, the well known Port Huron shipmaster attended the annual meeting of the Lake Carriers' Association at Detroit last week.

The well known tug W. B. Castle is for sale by the Kendall Marine Reporting Co. She was re-built in 1898 and is said to be in first class condition.

Capt. Alex. Sinclair, of Duluth, has been spending a few days here. The Captain was formerly a resident of Port Huron and now pays us an annual visit.

The Jenk Ship Building Co. has just laid the keel for a steamer the same size as the Capt. Tom Wilson and the Steinbrenner. She is being built on owners' account.

The first ice bridge of the season formed at the foot of Lake Huron on Thursday last. With the wind in a northerly direction it will be but a short time before the entire lower part of the lake is filled with ice.

E. J. Inslee, official grain inspector in Port Huron, says the burning of a number of elevators in Port Huron during the past season will go a long way towards ruining his business. One elevator cannot take care of all the grain that naturally comes to Port Huron and it will go somewhere else.

Superintendent W. H. Smith and Chief Engineer Joseph Hayes, of the steel trust boats, were here to survey and purchase the steamer Superior which they will take to Sault Ste. Marie and use as a supply boat. The Superior was brought here to take the place of the Conger on the ferry route during the winter and was owned by Nelson Mills. The Superior is a sister boat to the Duluth now in the Green Bay trade. Both are wooden steamers built in Cleveland for ferry service on Duluth-Superior Bay.

The local Marine Cooks' Union has been organized by Niles N. Peterson. The union will be one of the strongest, as it will include men from St. Clair, Marine City and Algonac. The officers elected were as follows: President, Otto Windover; vice president, A. McQueen; secretary and treasurer, E. H. Walter; corresponding secretary, George Kerwin; chaplain, George Dixon; Inspector, Otto Henc; inside guard, L. Lizwitzky; outside guard, W. O. Ames; delegates to trades council, E. H. Walter, A. McQueen and Otto Windover.

Suit has been commenced in the Circuit Court by James Offard through his attorney, Stephen A. Graham, against the Pawnee Boat Co., for $10,000. Offard alleges that on May 29, 1901, he was working on the barge J. R. Edwards, which is owned by the company, as a deckhand. He was at work assisting to shift the anchor of the boat. While leaning over the rail of the boat to place a strap the men allowed the anchor to slip and one of the flukes struck him, breaking his leg. He alleges the company was negligent and further claims that his injuries will be permanent. He asks for damages.

Representatives of the Port Huron and Sarnia Ferry Co. were in the police court at Sarnia this week charged with violating the 20-minute service clause in the ferry by-laws. The company admitted that boats were running only half hourly instead of every twenty minutes, but suggested as soon as the Conger was completed the required service would be given. The judge accepted the explanation, but announced that the by-laws must be lived up to to literally. He imposed a fine of $2 and costs or 14 days in the county jail. The fine must have been paid for the owners of the boats are still doing business in Port Huron.

The steamer building at the yard of the Craig Ship Building Co., at Toledo, for the Volunteer Transportation Co., will be named Charles Beatty. She will come out next spring.

IN FAVOR OF A SHIPPING SUBSIDY.

The Senate Committee on Commerce has authorized a favorable report on Senator Frye's ship subsidy bill. The report will be made by Senator Frye. The Democratic members of the committee voted against reporting the bill. They also voted solidly for a motion offered by Senator Mallory to strike out the general subsidy provision of the bill.

The committee made several amendments to the bill, the most important of which were: Allowing mail-carrying vessels under the bill to be either iron or steel, instead of steel only, as originaliy provided, and another reducing to 1,000 gross registered tons, the vessels receiving a bounty under the bill.

The report prepared by Senator Frye was read to the committee. It says that the purpose of the bill is to establish the maritime supremacy of the United States in trade with Asia and in the Gulf of Mexico and the Caribbean Sea; to establish securely trade between the United States and South American Republics, and to give the United States a respectable representation on the North Atlantic. The claim is made that all these results will be accomplished within ten years.

The report also asserts that the bill will so extend shipbuilding as to transfer in time from abroad to the United States the center of that industry, as the centers of other industries recently have been offered, and also that it will give to the United States a measure of maritime independence corresponding to our industrial and agricultural independence.

Senator Frye furnished the press the following summary of the report:

"The establishment of this complete American ocean mail service, involving much shipbuilding will require several years. It will render the United States as independent of foreign powers for its ocean mail service as is Great Britain. The cost of the American service by American mail steamers will be $4,700,000; the cost of the British and colonial service by British mail steamers is $4,700,000. Receipts from ocean postage by the United States are now estimated at $3,000,000. The annual deficit under the new American system proposed, including minor services, will be about $2,000,000. The annual deficit under the British colonial system is $2,188,000.

"The postal subsidy provisions enable the Postmaster General to establish an American ocean mail system superior to the systems of Great Britain, France and Germany.

"The second part of the report deals with the general subsidy to all American vessels, steam and sail, except mail steamers. It quotes President Roosevelt's message, showing that the cost of building American ships is greater than the cost of building ships abroad; that American wages on shipboard are higher, and that the government should remedy these inequalities. Discriminating duties, export bounties and subsidies based on export cargoes are in violation of our international obligations, so direct subsidies, it says, is the only practical method. The subsidy proposed is not a naked bounty, for it is based on public services to be rendered in return.

"Americans have absolute free trade in foreign-going ships, so no shipbuilders' trust is possible under the bill. Shipbuilders can import now free of duty materials for ships for foreign trade, so no combination to raise prices of materials is practicable.

"If an American ship owner will build his vessel in the United States, employing home labor, employing American officers and crews, performing certain services for the American government and using the vessel to promote American commerce he will be paid a subsidy sufficient to put him on an equality with the foreign ship owner, employing foreign labor and serving a foreign government.

"The average cost of building ocean steamers mainly for cargo is $102 a ton in the United States and $76 in Great Britain. Average monthly wages on ocean steamers mainly for cargo are, American, $36; British, $26; German and Scandinavian, $17. The general subsidies proposed equalize American and foreign costs on these bases.

The bill will promote the building of new vessels of large carrying capacity which promote export trade at low freight rates. Combined with our geographical position it gives special advantages to American vessels in the Pacific trade.

"Based on actual navigation of American vessels in foreign trade in 1900 the subsidies proposed would amount to $1,072,000 divided as follows: Steam (excluding mail vessels), $559,000; sail, $513,000; geographically, Atlantic Ocean, $444,000; Pacific Ocean, $467,000; square rigged ships on both oceans, $161,000.

"Full compliance with all requirements for the bill would fix the initial expenditures at between $800,000 and $900,000.

"Under the general subsidy increase in expenditure depends on increase in shipbuilding. The completion of 200,000 tons of ocean steamers for foreign trade in one year involving $1,300,000 in subsidies, will place the United States in advance of Germany as a shipbuilding nation.

"The deep sea fisheries bounty is to encourage an industry which, from the battle of Lexington to the battle of Santiago, has furnished more men proportionately for the national defense than any other American industry.

"The annual expenditure is estimated at $175,00. This amount offsets $160,000 paid to promote fisheries by Canada, which uses for the purpose the annual interest on $5,500,000 paid by the United States to Canada under the Halifax award in 1878. For seventy years the United States paid bounties to deep sea fishermen.

"The President of the United States has general supervision of regulations to enforce the act."

ASSISTANT INSPECTOR OF BOILERS.

STEAMBOAT-INSPECTION SERVICE.
February 26-27, 1902.

The United States Civil Service Commission announces that on February 26-27, 1902, an examination will be held at the places mentioned in the accompanying list for the position of assistant inspector of boilers in the Steamboat-Inspection Service.

The examination will consist of the subjects mentioned below, which will be weighted as follows:

1. Letter-writing	(Third grade)	10
2 Arithmetic		10
3. Boilers and machinery		60
4. Experience		20
Total		100

Information relative to the subjects and scope of the examination may be found in sections 37 and 163 of the Manual of Examinations revised to January 1, 1902.

Age limit, 25 to 55 years.

From the eligibles resulting from this examination it is expected that certification will be made to the position of assistant inspector of boilers of steam vessels for the district of New York, at a salary of $2,000 per annum, and to other similar vacancies as they may occur.

This examination is open to all citizens of the United States who comply with the requirements. Competitors will be rated without regard to any consideration other than the qualifications shown in their examination papers, and eligibles will be certified strictly in accordance with the civil service law and rules.

Persons who desire to compete should at once apply to the United States Civil Service Commission, Washington, D. C., or to the secretary of the local board of examiners at the places mentioned on the accompanying list, for application Form 1087 and a copy of the Manual of Examinations. The application should be properly executed and filed with the Commissioner prior to the hour of closing business on February 17, 1902.

January 18, 1902.

ANNUAL MEETING M. E. B. A.

At the second day's session of the annual meeting of the Marine Engineers' Beneficial Association the following officers were elected: President, Geo. Uhler, of Philadelphia; first vice president, Frank A. Jones, of Alameda, Cal.; second vice president, Evan Jenkins, of Cleveland, O.; secretary, Geo. A. Grubb, of Chicago, and treasurer, A. L. Jones, of Detroit. The advisory board of 1902 will include William Sheffer, of Baltimore, Joseph Brooks, of Philadelphia and John Sterrett, of New York. Immediately after the election the national officers were installed, Mr. William Yates, of New York, being the installing officer.

The matter of securing changes in certain of the regulations governing the light-house service with regard to the engineers' position was then taken up and thoroughly discussed. It was decided to take positive action before the proper authorities to secure a remedy for the evils that exist under the present regulations.

The committee on time and place of the next meeting reported in favor of Washington, and it was decided to meet again in January, 1903.

NAVAL COALING STATIONS.

The problem of naval success in war is a problem of coal. A fleet cannot operate with success if it must limit itself to defensive operations with a home base; it must be ready to strike offensively in the spot where the stroke will be the most effective, and to do this it must have access to coal supply at widely distributed points.

The report of Admiral Bradford, chief of the Equipment Bureau of the Navy, shows how we are progressing toward a provision of sources of coal supply. The progress is slow, but a gain is being made. We are as yet without a proper equipment of coaling stations on our own coast; and while we now have coaling stations on Mexican and Japanese territory, we have none in Cuba, and none in the direction of Europe. In the Pacific and in Philippine waters we shall soon be so well equipped in this line that we shall not be at a disadvantage in the far east. An immense sum has properly been spent in the last fiscal year to deposit American coal at these widely scattered stations, from Pichilinque, Mexico, through Hawaii, Tutuila and Guam to Japan and the Philippines. Another war would not see our navy so nearly paralyzed by a coal famine, says the Black Diamond, nor so dependent upon the friendly offices of another power, as it was in the Spanish war.

The steamer Tempest No. 2 has been sold by J. C. Miller, of Marine City, to H. Leonard Wilton and others, of Detroit, for $15,000. She measures 369 gross tons and will be used between Grace Harbor and Detroit in the lumber trade.

WIRELESS TELEGRAPHY.

The vast extent of our sea and lake coasts and the intimate communication between the weather bureau stations of this department, which are distributed along these coast lines, and the vessels of commerce have induced the Secretary of Agriculture to authorize persistent and systematic experimentation in etheric space telegraphy. Substantial improvements have been made during the past year in the department's system.

The line of research has been divided into three classes: First, the perfection of a more powerful transmitter, in which the energy of radiation shall be vastly increased; second, the devising of a more delicate receiver—one that would be positive instead of depending upon an imperfect and variable contact, as do all systems now in use; and, third, the perfection of system of selective telegraphy whereby messages may become responsive to the waves of ether.

The first of these problems may be said to have been successfully solved, and a transmitter devised capable of radiating all the energy generated. The second is believed to be nearing a successful solution. The third is thought to be well demonstrated theoretically, but it has not been fully tested in practice.

While there is much experimental work yet to be done before the present system is reliable for intership communication, or before any two systems can work within the same field without each rendering the other useless, such progress has been made by the government experimenters that, with nc interference by private systems, stations can be operated over at least 150 miles of coast line, and they are now in operation on the North Carolina and Virginia coasts, and soon will be instituted between the Farallone Islands and the mainland and Tatoosh Island and the mainland on the Pacific coast.

MERITED RECOGNITION—A CANADIAN LAKE CAPTAIN HONORED.

Sir Thomas Shaughnessy, president of the C. P. R., presented to Capt George McDougall, of the company's lake steamer Athabasca, on Saturday a valuable gold watch and chain, the timepiece bearing this inscription, "From the President of the United States to Capt. George McDougall, for humane services performed in the rescue of the captain and crew of the United States barge Preston, on Lake Superior, June 29, 1901,"

It will be recalled that on that date the Athabasca sighted the Preston, which was lumber laden, flying a flag of distress and in a sinking condition. Coming to the barge's assistance the captain of the Athabasca, seeing no chance of saving the barge or its cargo, put all his efforts to save the crew, which he succeeded in doing with one exception, the wheelman, who was crushed between the two boats. The crew of the Athabasca contributed $100 toward the relief of the unfortunate sailor's widow. This handsome token of recognition for humane services was sent by President Roosevelt to the office of Foreign Affairs in London, and turned over by Lord Landsdowne to the Secretary of State for the Colonies, Joseph Chamberlain, and by him sent to Lord Minto, Governor General of Canada, who forwarded it to President Shaughnessy for final delivery.

ANOTHER YACHT CHALLENGER.

After a lengthy interview held with Sir Thomas Lipton there is no reason to doubt the correctness of the arrangement already announced that William Fife, of Fairlie on the Clyde is to build Sir Thomas Lipton's next challenger for the America's cup. It need only be added that no contracts have yet been signed, and that this fact constitutes the basis for the technical denials of the previous announcement.

It may also be added that the association of William Fife and George L. Watson in the construction of the next challenger is likely to be very intimate, these two yacht designers apparently being now willing to form what amounts to a partnership over Shamrock III. That Mr. Fife is to have the major share of the work in constructing the new yacht is greatly due to Mr. Watson's declination to leave home again for any length of time.

Marine Insurance.—Loss Due to Wrongdoer.—The fact that a marine insurance company, which had paid a loss due to the wrongful act of another, was not a party to the suit by the insured against the wrongdoer, or liable in any way for the costs connected therewith, did not defeat its right to a proportionate share in the recovery, where it was never requested to become a party or to contribute toward the prosecution of the action. Egan vs. British & Foreign Marine Ins. Co., 61 N. E. Rep. (Ill.) 1081.

Obligations of Owner Under Charter.—Furnishing Electric Lights For Discharge of Inflammable Cargo.—It is doubtful whether a charterer can require the shipowner to furnish electric lights to facilitate the discharge of a cargo which by reason of its inflammable nature cannot be handled safely by the use of lamps, and, at any, rate, a claim for damages for delay which might have been thereby prevented will not be allowed where no demand was made on the master to furnish such lights. Matthias vs. Beeche et al., 111 Fed. Rep. (U. S.) 940.

PANAMA OR NICARAGUA—WHICH?

Following the ratification of the Hay-Pauncefote Treaty for the construction of the Isthmian canal, is a renewal of the discussion as to the relative merits of the two routes available for the proposed waterway. The settlement of this question is the first logical step toward the execution of the project. It is of such far-reaching importance, financially as well as in its international bearings that it should be and will be determined only after the broadest and most thorough consideration. There has been a widespread impression that the ultimate adoption of the Nicaragua route was a foregone conclusion, that the Government of the United States was in some way committed on that point, and that the Panama route was no longer a factor in the problem. This impression, which is both erroneous and misleading, has had its foundation on these grounds: First, the unanimous report in favor of the Nicaragua route by the Isthmian Canal Commission, of which Rear Admiral John G. Walker, U. S. N., retired, is President; second, the energetic support given in Congress to measures specifically pledging the Government to the Nicaragua route, and, third, the fact that the price demanded by the French Panama Canal company for its concession and plant was so high as to be virtually prohibitive of a canal along the Panama route. These considerations have naturally conveyed the impression that the Isthmian canal, if constructed by the authority of the United States, would follow the Nicaragua route.

But a great change has taken place, and the Panama route has all of a sudden become an attractive candidate for public favor. The Isthmian Canal Commission pronounced the Nicaragua route "the most practical and feasible," for the reason that the price demanded for the Panama route made Nicaragua the cheapest by $63,500,000. This estimate was, however, based upon a demand of $109,141,500 for the Panama concession. This price was out of the question. It was not conditioned upon the value of the property involved, but was clearly determined by a desire to recover a part at least, of the millions of money belonging to French investors, which De Lesseps and his associates squandered in exploiting the Panama enterprise. So long as the French company stood out for its exorbitant figures the Panama route was an impossibility, and the status of Nicaragua route as "the most practical and feasible" was firmly upheld by the convincing argument of dollars and cents.

Now, however, the French holders have come to their senses. Having discovered that they cannot get what they want, they have concluded to take what they can get. In short, the Panama Canal company of France, which is merely a reorganization of the old one, has placed its concession and plant on the bargain counter and marked the price down from $109,141,500 to just $40,000,000. This offer is reasonable and business-like. As a matter of fact the Isthmian Canal Commission, composed of ten members, most of them engineers of high reputation, after a careful examination of the property of the Panama company, estimated its value at the figure now named by its owners. The new French proposition, therefore, which is based upon "the terms and conditions of the estimates of the Commission," is simply an offer to sell out at the buyer's own valuation, and it brings squarely to the front the question of the relative advantages of the two routes. Granting that the two are equally desirable in other respects, the financial argument is undeniably in favor of Panama, as a brief comparison will show. Under the old demand for $109,141,500 for the property of the Panama company, a canal along its route would have cost $63,510,000 more than one on the Nicaragua route, but under the new offer to sell at $40,000,000 the first cost of the Panama canal would be $5,630,000 less than a Nicaragua canal. The commission also estimates that the operating and maintenance expenses of a Panama canal would be $1,300,000 a year less than those of a Nicaragua canal. If this difference in favor of Panama be capitalized at 4 per cent. and taken into the general account, the cost of the canals would be about as follows: Nicaragua, $222,364,062; Panama, $184,233,358; difference in favor of Panama, $38,130,704. The question which these figures suggest is whether the Nicaragua route possesses advantages that would justify its adoption for canal purposes at the increased cost over Panama. And that question we commend to the consideration of the long line of distinguished engineers of the Army and Navy who have already given it so much careful thought and investigation.

Of course, the mere money payment would not be the only thing to be taken into account in considering this new French proposal. First of all assurances would have to be given that the French Government should make no objection to the transfer of the property to the United States. Satisfactory guarantees of title would also be required, and the parties to the transaction would have to procure the approval of the Government of Colombia, for the good and sufficient reason that the charter of the Panama Canal company forbids the sale of the franchise to any government, and stipulates that a proposal to make such a sale shall work a forfeiture of the company's property. These necessary considerations, however, could doubtless be easily arranged should the Government decide upon the Panama route, the relations between the United States and the Central American republics being such that all obstacles to the construction of a canal over either route would disappear through friendly negotiation. No matter what may be the final outcome, we are persuaded that the one effect of this new French offer will be to hasten the construction of an Isthmian canal. The two routes are now at the disposal of the United States on their merits alone, unobstructed by unreasonable money demands or political entanglements. The Army and Navy Journal has repeatedly insisted that the Panama route had advantages which should not be overlooked. We have pointed out the hearty approval of this route by Gen. Henry L. Abbott, U. S. A., retired, and other eminent engineers, and urged the utmost care in settling this vexatious and important qusetion.

After three days of debate the House of Representatives, on Jan. 9, passed the Nicaragua Canal bill by a practically unanimous vote, only two of the 310 members present voting against it. Strong efforts were made to recommit the measure with instructions to report a substitute authorizing the President to negotiate for a canal by either the Nicaragua or the Panama route, the concession and plant of the Panama Canal company, if selected, to be taken at a maximum price of $40,000,000. These efforts were prompted by a statement that representatives of the Panama company now in Washington are about to make an offer to dispose of its property at the price named above which, it is claimed, would permit the construction of a canal over the Panama route for fully $60,000,000 less than it would cost to build one over the Nicaragua survey. It was urged by the advocates of the motion to recommit that the President should be empowered to consider both routes, but the supporters of the Nicaragua project prevailed over all opposition, though it is admitted that the strength of the friends of the Panama route was by no means disclosed in the vote on final passage. The bill, as it passed the House, authorizes the building of a canal on the Nicaragua route at a cost not exceeding $180,000,000, and $10,000,000 is made immediately available to be expended under the supervision of the Secretary of War for materials and labor in construction. The bill is now before the Senate Committee on Inter-Oceanic Canals, a majority of which it is said are in favor of reporting it favorably.—The Army and Navy Journal.

STATEMENT OF THE VISIBLE SUPPLY OF GRAIN.

As compiled by George F. Stone, Secretary Chicago Board of Trade, January 18:

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels
Buffalo	5,691,000	644,000	593,000	30,000	1,092,000
" afloat	538,000	84,000			
Chicago	6,837,000	4,720,000	629,000	1,019,000	193,000
" afloat	417,000			77,000	
Detroit	623,000	212,000	25,000	15,000	16,000
Duluth	9,591,000	281,000	162,000	452,000	255,000
" afloat	511,000				
Fort William, Ont.	3,658,000				
Milwaukee	452,000	91,000	284,000	45,000	141 000
Port Arthur, Ont.	65,000				
Toledo	211,000	987,000	459,000	245 000	6,000
Toronto	37,000		9,000		44,0 0
On Canals	46,000	3,000	112,000	37,000	50,000
Grand Total	59,273 000	11,752,000	4 212,000	2,284,000	2,161,000
Corresponding Date, 1900	61,195,0 0	11,74 ,000	9,535,000	1,217,000	2,011,000
Increase for week	1,196,000	109,000			12,000
Decrease " "			332,000	125.000	

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

POPULATION OF THE UNITED STATES.

According to a recent bulletin issued from the Census Bureau at Washington, the entire population of the United States, including all outlying possessions, was 84,233,069 in the census year 1900. This is itemized as follows: Continental United States, or United States proper, 75,994,575, as before announced; Philippines, 6,961,330, being the estimate of the statistician to the Philippine Commission; Porto Rico, 953,243; Hawaii, 154,001; Alaska, 63,592; Guam, 9,000; American Samoa, 6,100; persons in the military and naval service of the United States outside of the territory of the United States proper, 91,219. A census of the Philippine Islands was in progress in 1896 when the insurrection broke out, and returns for over two-fifths of the population were found stored in Manila. These were carefully tabulated, and the foregoing estimate is based upon the results. The population of the United States has increased nearly sixteen fold in 100 years. There are but three countries which now have a greater population than the United States, viz., China, the British Empire, and the Russian Empire. France, including its dependencies, is the fourth country of the world in order of population, and has almost the same number as the United States.

ACCORDING to the Engineering and Mining Journal of New York City, whose managing editor is Edward W. Parker, "the amount of coal produced and marketed in 1901 in the United States aggregated 300,000,000 tons of 2,000 pounds, against 269,881,827 tons in 1900." In 1870 America supplied only fifteen per cent. of the world's coal, and twenty years ago less than twenty per cent. In 1877 American producers passed Germany and took rank second to Great Britain. In 1899 the product of American mines for the time surpassed that of Great Britain, and the leading position among the world's producers, then wrested from our English cousins, has been maintained and increased since by the American mines.

REPORTED BY THE LOOKOUT.

The American Ship Windlass Co., of Providence, R. I., is about to make a shipment of capstans to A. Rodger & Co., of Port Glasgow, Scotland.

A bill providing for a large number of light-house and fog signal stations in Alaska has been reported to the Senate from the Committee on Commerce.

The government has just completed two handsome life-saving stations at Lake Michigan points, one at Sleeping Bear Point and the other on South Manitou Island, at a cost of $12,000. Inspections of both have just been made.

The steamer Francis Hinton, owned by Capt. William Evans and A. A. Vanavan, of St. Joseph, has been sold to Capt. C. M. Campbell, John Lutz and J. Oliver, of the Indiana Transportation Co., of Michigan City, for $20,000. For the last three seasons the steamer Hinton was under the command of Capt. Evans. The new owners will continue to operate the steamer in the lumber trade from various east shore ports.

Capt. Malloy, of Ontonagon, has closed a deal for the purchase of the boat owned by Harry Corgan. Mr. Malloy purchased the craft for the Lake Superior Fish Co., of which he is the manager. The Courtney C. will be renamed. It is the intention of the company to make extensive repairs to the tug and use it in their operations off Ontonagon. The boat is 45 feet long, 10 feet beam, with a speed of ten miles an hour.

A steamer recently arrived at New York reports having seen the remarkable phenomenon of a collision of two hurricanes. The vessel happily was not in their track, else she never would have brought the story to port. Some energetic western correspondent probably will now be inspired to diffuse an exciting account of a contest between Kansas cyclones, with intelligent estimate of the fighting qualities of the respective "twisters."

The North-West Transportation Co.'s new steamer Huronic, which was launched at Collingwood, Ont., a short time ago, will, it is said, be the fastest steel boat on the Great Lakes. She will steam 18 miles an hour. Her freight capacity is 3,000 tons. There will be accommodations for 250 first-class passengers. The three new sister boats of the Huronic to be built in 1902, will be Canadian products all through or as near thereto as is practicable.

The recent stranding of the car ferry Pere Marquette No. 15, has led the Luddington Record-Appeal to argue in favor of continuing the life-saving service at that port. What is true of Ludington is equally true of Grand Haven, Frankfort and all points along the west shore of Lake Michigan reached by steamers during the winter months where stations exist. The Appeal thinks that instead of seven surfmen four would probably be sufficient, for no beach patrols need be made during the winter months.

The identity of the Hudson sailor whose body was found at Traverse Bay two months ago and who was buried at Lake Linden, may yet be discovered. Agent J. C. Thomson, of the Western Line, sent some of his effects to Buffalo for identification but the officers of the steamship company were unable to secure any identification. The effects have now been deposited with the county clerk in accordance with the law. They consist of a watch and chain and some papers. A book has been found in which are written certain bank deposits. The officers will make another effort through this medium to discover who the man was. The grave has been marked "Unknown Hudson Sailor," and if any relatives are found the remains will be disinterred and shipped east.

CANADIAN MERCHANT SHIPPING.

The total number of vessels remaining on the register books of the Dominion on December 31, 1900, including old and new vessels, sailing vessels, steamers and barges, was, 6,735, measuring 659,534 tons register tonnage, being an increase of 37 vessels and a decrease of 19,818 tons register, as compared with 1899. The number of steamers on the registry books on the same date was 2,101, with a gross tonnage of 293,096 tons. Assuming the average value to be $30 per ton, the value of the registered tonnage of Canada, on December 31 last, would be $19,786,020.

The number of new vessels built and registered in the Dominion of Canada during the last year was 297, measuring 22,329 tons register tonnage. Estimating the value of the new tonnage at $45 per ton, it gives a total value of $1,004,805 for new vessels.

PROF. J. T. MORRISON, of the Victorian College, Stellenbosch, has been lecturing on the possibilities of water power in South Africa. He suggested that the Orange River Falls might very easily be used for working the whole system of the South African railways electrically. The lecturer calculated the cost of transmitting the power from the Orange River Falls as follows: Hydraulic works and dynamos, $900,000; copper wire necessary to carry this power 400 miles, $2,000,000; erection of transmission line, $900,000; wires along railway, $3,000,000. The total first cost would thus be $6,800,000. Prof. Morrison submitted that the scheme was workable and would be profitable. He thought it would be a serious blunder if the government allowed the whole of these sources to pass into the hands of large capitalists without proper taxation being returned.

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CLEVELAND, O., JANUARY 23, 1902.

A NOTABLE addition to the strength of the Lake Carriers in meeting the demands of labor was that of Capt. James Davidson, the big shipowner and shipbuilder, of Bay City, who returned to the organization and who will enter his boats on the rolls. Last spring Capt. Davidson was outside of the Lake Carriers and made his own terms with his engineers. The coming season will find him again a prominent member of the association.

CHICAGO'S TONNAGE.

Mr. Elliott Flower, writing in the Century for February, of Chicago's great River-Harbor, makes this significant comparison of the seven leading ports of the world:

In the total tonnage of arrivals and clearances Chicago ranks fourth among the principal ports of the world, leading all but London, New York and Hamburg. The figures for the year ending December 31, 1900 (except in the case of New York, for which the figures for the fiscal year ending June 30, 1900, are given), are as follows:

London	16,529,085
New York	16,020,290
Hamburg	14,198,817
Chicago	14,186,100
Antwerp	13,573,472
Liverpool	11,818,000
Marseilles	9,629,114

So far as the United States is concerned, Chicago leads all ports except New York in tonnage, and leads even that port in the number of arrivals and clearances, the annual report showing 17,017 for Chicago, and 14,019 for New York. It handles more than three times the tonnage of Boston, almost four times the tonnage of Philadelphia, and more than four times the tonnage of Baltimore. In the thirty years since 1870 this tonnage has more than quadrupled, but it is a singular fact that the annual total of arrivals and clearances has decreased by nearly 8,000, due, of course, to the increase in the size of vessels. Fewer boats are used than formerly, but they carry much more, and this has modified what is known as "the bridge nuisance." Bridges are not opened so frequently, nor are they kept open so long.

It is said that Lieutenant Hobson wants to lecture. A short time ago he wanted to be lectured. He seemed to be in favor of securing a mother-in-law

MARINE COMMERCE OF DULUTH AND SUPERIOR FOR 1901.

COMPILED BY THE OFFICE OF THE CORPS OF ENGINEERS, U. S. A., AT DULUTH, MINN.

A statement of the commercial statistics for the harbors of Duluth, Minn., and Superior, Wis., for the calendar year, 1901, is furnished by Capt. D. D. Gallard, Corps of Engineers, U. S. A., stationed at Duluth, Minn.

The net registered tonnage is given and is obtained from vessel reports made to this office, and checked by official marine directors.

Valuations of freight were obtained from the various trade journals, commercial records, and the principal wholesale dealers and are based on average wholesale prices on board vessels for exports, and landed on wharves for imports.

Two million nine hundred and eighty-eight thousand five hundred and fifty-eight net tons of cargo was received through the Duluth Canal, and 382,655 net tons, not including logs, through the Wisconsin entry. One hundred and thirty-six million eight hundred and twenty-two feet B. M., of logs came through the Wisconsin Entry, of which amount 93,050,000 feet B. M., came to Duluth.

Six million seven hundred and thirty-nine thousand nine hundred and thirty-four net tons of cargo departed through the Duluth canal, and 2,862,226 net tons through the Wisconsin Entry. Of the latter amount, 86,150 tons were loaded at Duluth.

Wheat and other grains show an increase of 16,010,247 bushels, with a valuation over $20,000,000 greater than in 1900.

Hard coal shows an increase of 273,905 tons, with a valuation over $1,600,000 greater than in 1900.

Soft coal shows a decrease of 70,503 tons, valued at $232,660 less than in 1900.

Iron ore shows an increase of 484,583 net tons over 1900.

The total freight traffic of 12,973,373 net tons shows an increase of 1,248,128 net tons over 1900, with a valuation of $26,196,623 more than 1900.

The Wisconsin Entry has an increase of 640,672 net registered tons and 581,804 net tons freight over 1900.

The total number of passengers arriving and departing was 97,414, an increase of 34,421 over 1900, and 61,612 over 1895. Part of increase due to excursion business.

Average net registered tonnage, recorded at Duluth, exclusive of tugs, 1,451.

Vessels recorded at Duluth Canal were: Entering, 3,964; departing, 3,707. Net registered tonnage of vessels entering, 5,110,713; net registered tonnage of vessels departing, 4,629,160. Total number of vessels entering and departing, 7,671; total net registered tonnage of vessels entering and departing, 9,739,873.

Average net registered tonnage of vessels arriving at, and departing from Superior, exclusive of tugs, was 1,606.5.

Vessels recorded at Wisconsin Entry were: Entering, 985; departing, 1,229; total, 2,214. Net registered tonnage of vessels entering, 1,234,542; departing, 1,670,039; total, 2,904,581.

Average number of tons cargo received per day at Duluth and Superior, 14,531.

Average number of tons cargo shipped per day from Duluth and Superior, 41,389.

The navigation season covered a period of 232 days. This is reckoned from the first arrival to the last arrival from the lower lakes. The open season for Duluth-Superior harbor to and from Lake Superior ports only, was much longer, as some of the local boats were still running at the close of the calendar year.

Duluth Canal: First boat departed "local" April 16, 1901.
First boat entered, "local" April 18, 1901.
First boat entered from lower lakes, April 29, 1901.
First boat departed for lower lakes April 26,1901.
Last boat departed for lower lakes December 7, 1901.
Last boat arrived from lower lakes December 16, 1901.
North shore boats were running at close of calendar year.

Wisconsin Entry: First boat departed for lower lakes May 7, 1901.
First boat entered from lower lakes May 11, 1901.
Last boat arrived from lower lakes December 11, 1901.
Last boat departed for Duluth December 16, 1901.

The past twelve years' statistics of freight arrived and departed shows as follows:

1890	2,848,672.
1891	3,493,533.
1892	4,241,902.
1893	4,975,292.
1894	5,826,656.
1895	6,325,351.
1896	7,886,830.
1897	8,475,224.
1898	10,127,261.
1899	11,608,088.
1900	11,725,245.
1901	12,973,373.

CONDENSED STATEMENT OF VESSELS RECORDED AT DULUTH SUPERIOR HARBOR DURING CALENDAR YEARS 1895-1901.

Year	Steam Vessels Entered	Sail & Tow Vessels Entrd	Total Vessels Entered	Registered Tonnage Entered	Steam Vessels Departed	Tow & Sail Vessels deprtd	Total Vessels Departed	Registered Tonnage Departed	Total Vessels Deptd & Entd	Total Registered Tonnage	Average Net Registered Tonnage Exclusive of Tugs	Increase or Decrease over Previous Year
1895	4,630	875	5,505	5,665,752	4,571	910	5,481	5,768,520	10,986	11,434,272	1,172	
1896	4,603	924	5,527	6,626,101	4,484	937	5,421	6,726,967	10,948	13,353,068	1,351	+ 179
1897	3,957	907	4,864	6,342,118	3,956	938	4,894	6,503,747	9,758	12,845,865	1,434	+ 83
1898	4,547	972	5,519	7,014,924	4,354	997	5,351	7,120,313	10,870	14,135,237	1,480	+ 46
1899	4,726	1,090	5,816	7,235,288	4,588	1,122	5,710	7,198,213	11,526	14,433,501	1,435	+ 45
1900	4,804	921	5,725	7,179,142	4,708	901	5,609	7,207,926	11,334	14,387,068	1,443	+ 8
1901	5,609	1,072	6,681	8,655,957	5,517	1,060	6,583	8,589,762	13,264	17,245,719	1,529	+ 86
Total	32,876	6,761	39,637	48,719,282	32,178	6,871	39,049	49,115,448	78,686	97,834,730		

RECEIPTS SHIPMENTS AND VALUATIONS—DULUTH AND SUPERIOR COMBINED.

Year	Receipts net tons	Valuation of Receipts	Shipments net tons	Valuation of Shipments	Total Receipts & Shipments	Total Valuation, Receipts & Shipments	Increase in Valuation over Previous Year	Increase or Decrease of Receipts & Shipments over previous Years, Tons
1895	2,035,465	$ 27,443,512	4,289,886	$ 67,556,488	6,325,351	$ 95,000,000		
1896	2,407,880	27,717,561	5,478,953	83,959,359	7,886,833	111,676,900	$16,675,900	+ 1,561,482
1897	2,492,420	28,963,122	5,982,804	89,588,063	8,475,224	118.551,185	6,874,285	+ 588,391
1898	2,979.809	34,578,955	7,147,452	108,064,065	10,127,261	142,643,020	24,091,835	+ 1,652,037
1899	3,091,425	40,193,821	8,516,663	116,950,145	11,608,088	157,143,966	14,500,946	+ 1,480,827
1900	3,085,184	32,565,381	8,640,061	102,543,815	11,725,245	135,109,196	22,034,770	+ 117,157
1901	3,371,213	41,163,507	9,602,160	120,122,312	12,973,373	161,305,819	26,196,623	1,248,128
Total	19,463,396	$232,625,859	49,657,979	$688,804,227	69,121,375	$921,430,086		

NOTE.—In addition to the above traffic for 1901, 136,822,000 Ft. B. M. of logs were received.

TREASURY DECISIONS.

Sections of Revised Statutes of the United States relating to licensed officers of steamboats.

STEAMBOAT-INSPECTION SERVICE.
OFFICE OF SUPERVISING INSPECTOR-GENERAL,
WASHINGTON, D. C., January 10, 1902.

To licensed officers of steamboats:

The following sections of the Revised Statutes, and extracts from the Revised Rules and Regulations of the Board of Supervising Inspectors are published herewith for the information of licensed officers; and their special attention is invited to the penalties to which they render themselves liable by noncompliance with the provisions thereof:

Sec. 17, Rule V, Rules and Regulations. Whenever a steamer meets with an accident involving loss of life or damage to property it shall be the duty of the licensed officers of any such steamer to report the same in writing and in person without delay, to the nearest local board: Provided, When from distance it may be inconvenient to report in person, it may be done in writing only, and the report sworn to before an authorized magistrate.

Sec. 4413, Revised Statutes. Every pilot, engineer, mate, or master of any steam vessel who neglects or willfully refuses to observe the regulations established in pursuance of the preceding section (4412), shall be liable to a penalty of fifty dollars, and for all damages sustained by any passenger, in his person or baggage, by such neglect or refusal. (For western rivers only.)

Sec. 3, Act of Congress approved June 7, 1897. That every pilot, engineer, mate, or master of any steam vessel,

and every master or mate of any barge or canal boat, who neglects or refuses to observe the provisions of this Act, or the regulations established in pursuance of the preceding section (2), shall be liable to a penalty of fifty dollars, and for all damages sustained by any passenger in his person or baggage by such neglect or refusal: Provided, That nothing herein shall relieve any vessel, owner or corporation from any liability incurred by reason of such neglect or refusal. (For Atlantic and Pacific coast inland waters.)

Sec. 2, Act of Congress approved February 8, 1895. That a fine, not exceeding two hundred dollars, may be imposed for the violation of any of the provisions of this Act. The vessel shall be liable for the said penalty, and may be seized and proceeded against, by way of libel, in the District Court of the United States for any district within which such vessel may be found. (For the Great Lakes and their connecting and tributary waters as far east as Montreal.)

Sec. 4445, Revised Statutes. Every master, chief mate, engineer, and pilot, who receives a license, shall, before entering upon his duties, make oath before one of the inspectors herein provide for, to be recorded with the certificate, that he will faithfully and honestly, according to his best skill and judgment, without concealment or reservation, perform all the duties required of him by law.

Every applicant for license as either master, mate, pilot, or engineer under the provisions of this title shall make and subscribe to an oath or affirmation, before one of the inspectors referred to in this title, to the truth of all the statements set forth in his application for such license.

Anv person who shall make or subscribe to any oath or affirmation authorized in this title and knowing the same to be false shall be deemed guilty of perjury.

Every licensed master, mate, pilot, or engineer who shall change, by addition, interpolation, or erasure of any kind, any certificate or license issued by any inspector or inspectors referred to in this title shall, for every such offense, upon conviction, be punished by a fine of not more than five hundred dollars or by imprisonment at hard labor for a term not exceeding three years.

Sec. 4446, Revised Statutes. Every master, mate, engineer, and pilot who shall receive a license shall, when employed upon any vessel, place his certificate of license, which shall be framed under glass, in some conspicuous place in such vessel, where it can be seen by passengers and others at all times; and for every neglect to comply with this provision by any such master, mate, engineer or pilot, he shall be subject to a fine of one hundred dollars, or to the revocation of his license.

Sec. 4465, Revised Statutes. It shall not be lawful to take on board of any steamer a greater number of passengers than is stated in the certificate of inspection; and for every violation of this provision the master or owner shall be liable, to any person suing for the same, to forfeit the amount of passage-money and ten dollars for each passenger beyond the number allowed.

Sec. 4467, Revised Statutes. The master of every passenger steamer shall keep a correct list of all the passengers received and delivered from day to day, noting the places where received and where landed, which record shall be open to the inspection of the inspectors and officers of the customs at all times; and the aggregate number of passengers shall be furnished to inspectors as often as called for; but on routes not exceeding one hundred miles, the number of passengers, if kept, shall be sufficient.

Sec. 4468, Revised Statutes. Every master of any passenger steamer who fails, through negligence or design, to keep a list of passengers, as required by the preceding section, shall be liable to a penalty of one hundred dollars.

Sec. 4441, Revised Statutes. * * *. Whenever complaint is made against any engineer holding a license authorizing him to take charge of the boilers and machinery of any steamer, that he has, through negligence or want of skill, permitted the boilers in his charge to burn or otherwise become in bad condition, or that he has not kept his engine and machinery in good working order, it shall be the duty of the inspectors, upon satisfactory proof of such negligence or want of skill, to revoke the license of such engineer and assign him to a lower grade or class of engineers, if they find him fitted therefor.

Sec. 14, Rule IX, Rules and Regulations. When it is known or comes to the knowledge of the local inspectors that any steam vessel is or has been carrying an excess of steam beyond that which is allowed by her certificate of inspection, the local inspectors in whose district said steamer is being navigated, in addition to reportng the fact to the Unted States District Attorney for prosecution, under section 4437, Revised Statutes, shall require the owner or owners of said steamer to place on the boiler of said steamer a lock-up safety valve that will prevent the carrying of an excess of steam and shall be under the control of said local inspectors.

On the placing of lock-up safety valve upon any boiler, it shall be the duty of the engineer in charge of same to blow or cause the said valve to blow off steam at least once in each watch of six hours or less, to determine whether the valve is in working order, and it shall be his duty to report to the local inspectors any failure of such valve to operate.

In case no such report is made, and a safety valve is found that has been tampered with or out of order, the license of the engineer having such boiler in charge shall be revoked.

It shall be the duty of the local inspectors to send a copy of this rule to every steamer in their district, when said copies are furnished by the Department.

Sec. 4448, Revised Statutes. All ojcers licensed under the provisions of this Title shall assist the inspectors in their examination of any vessel to which such licensed officers belong, and shall point out all defects and imperfections known to them in the hull, equipments, boilers, or machinery of such vessel, and also shall make known to the inspectors, at the earliest opportunity, all accidents or occurrences producing serious injury to the vessel, her boilers, or machinery; and in default thereof the license of any such officer so neglecting or refusing shall be revoked.

Sec. 5344, Revised Statutes. Every captain, engineer, pilot, or other person employed on any steamboat or vessel by whose misconduct, negligence, or inattention to his duties on such vessel, the life of any person is destroyed, and every owner, inspector, or other public officer, through whose fraud, connivance, misconduct, or violation of law, the life of any person is destroyed, shall be deemed guilty of manslaughter, and, upon conviction thereof before any Circuit Court of the United States, shall be sentenced to confinement at hard labor for a period of not more than ten years.

The attention of masters of steam vessels is particularly directed to the following rule of the Board of Supervising Inspectors in relation to station bills:

Sec. 15, Rule V, Rules and Regulations. It shall be the duty of the master of every inspected steamer of 30 net tons and over, carrying passengers on the ocean, lakes, gulf[s], or bays, when such steamer is under way, to cause to be prepared a station bill for his own department, and one, also, for the engineer's department, in which shall be assigned a post or station of duty for every person employed on board such steamer, in case of fire or other disaster; which station bills shall be placed in the most conspicuous places on board for the observation of the crew. And it shall be the duty of such master, or of the mate or officer next in command, once at least in each week, to call all hands to quarters and exercise them in the discipline, and in the unlashing and swinging out of the life-boats, weather permitting, and in the use of the fire pumps and all other apparatus for the safety of life on board of such vessel, and to see that all the equipments required by law are in complete working order for immediate use; and the fact*8o okd
in contemplated, shall be entered upon the steamer's log-book, stating the day of the month and hour when so exercised, and any neglect or omission on the part of the officer in command of such steamer to strictly enforce such rule shall be deemed cause for the revocation of the license of such officer. Upon navigable rivers the captians of all passenger steamers of 30 net tons and over shall be required to maintain a strict discipline and organize the officers and permanent crew so as to act with promptness in case of fire or other disaster; and the captain shall cause to be prepared at least two station bills, assigning the officers and permanent crew to definite places. Said station bills shall be conspicuously placed, under glass, near the inspection certificate.

Licensed officers are notified that in case of the loss of their license through any cause, they can obtain a certificate of such loss (Form 2162) to take the place of the lost license, which certificate will hold good until date of expiration of the lost or destroyed license, or grade of license is raised, in which case the certificate may be surrendered, and new license issued indicating the new grade.

The attention of officers named therein is particularly directed to the following resolution of the Board of Supervising Inspectors, adopted at the meeting of January and February, 1900:

Resolved, That masters, mates and pilots of all vessels be required to exercise due caution in the use of their search lights so as not to throw the rays of the light into pilot house of passing steamers.

A willful violation of the above requirement will subject the offender to a suspension or revocation of license.

Local inspectors are hereby instructed to furnish a copy of this circular (which supercedes No. 13, dated February 7, 1900) with every master's, mate's, pilot's and engineer's license issued.

Copies will be furnished by the Department on requisition. JAS. A. DUMONT, Supervising Inspector-General.

Approved: L. J. GAGE, Secretary of the Treasury.

According to the plans of the lake members of the Marine Engineers Beneficial Association Mr. Evan Jenkins of Cleveland, who was elected second vice president of the association at the convention at Washington Tuesday, will have charge of the lake lodges. That means that he will remain ashore and devote all his time to the office. The lakes will be divided into five districts and a business agent will be selected for each district to work under the drection of Vice President Jenkins. A schedule of wages for the lakes has been prepared and if it is adopted at the Washington meeting it will presented to the vesselmen when the delegates reach home. Mr. Jenkins, who took an active part in the strike last spring, has been in the employ of the Cleveland-Cliffs Iron Co., Cleveland, for a number of years and last season he was chief engineer of the steamer Presque Isle.

Shipping.—Charter.—Prior Representations.—Representations made by a shipowner prior to a charter respecting the speed of his vessel, but which are not embodied in the charter, are superseded by that instrument, in the absence of fraud or mutual mistake. Matthias vs. Beeche et al., 111 Fed. Rep. (U. S.) 940.

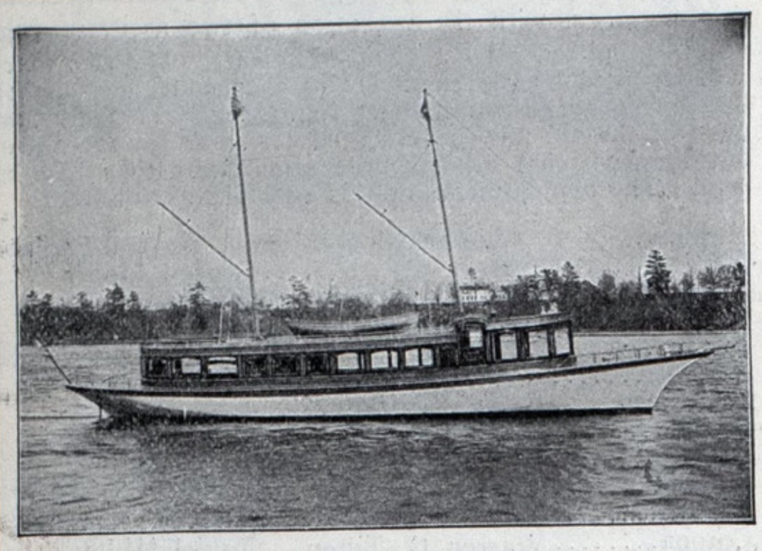
ENGINEERS APPOINTED.

Superintendent Engineer Hayes of the Pittsburg Steamship Co., has, with the exception of two assistant engineers, completed his list of appointments. The two places will be filled by the engineers in charge of the steamers. There are not many changes in the chief engineers and most of the old men have signed contracts for the season, but they will not all have the same boats they had last year. The appointments at this date are as follows:

Steamer.	Chief Engineer.	Second Engineer.
Bartlett	Aubrey Rivard	George Moiles
Bessemer	John B. Heyward	William Clucas
Black	John Hegemer	Jay A. Popp
Briton	A. G. Haig	H. M. Lubahn
Bunsen	Richard Masten	C. L. Birtrand
Cambria	E. H. Learned	J. A. Bennett
Colby	F. E. Sanders	W. H. Roach
Colgate	Warren Welch	A. Armstrong
Coralia	Alex. McKenzie	A. W. Carlisle
Cornell	A. L. Eggert	John H. Riggin
Corona	Warren G. Tilton	Daniel Milloy
Corsica	J. J. Norcross	Morriss Carroll
Cort	Joseph Taylor	Harry Firby
Crescent City	Irwin Marshall	A. E. Buddemeyer
Eads	A. J. Smith	John Beaubien
Edenborn	E. S. Stoddard	Peter A. Rivers
Ellwood	George C. Lawrence	John B. McDermid
Empire City	Frank Mansfield	G. Barnhardt
Ericsson	Ansel P. Williams	M. J. Huber
Fairbairn	David A. Black	Neil McNeil
Fulton	James L. Walker	Ross Leedham
Gates	Julius W. Greiner	George A. Gardner
German	Fred Warning	Roy B. Huston
Gilbert	A. McGillivray	George Trivillion
Grecian	John Dupont	Joe Hasler
Griffin	Bernard Woods	Joseph W. Popp
Harvard	C. H. Burke	J. F. Wood
Hill	W. L. Campbell	Harry Roberts
Houghton	J. W. McEachern	F. L. Smith
Hoyt	J. B. Miller	J. L. Wartinbee
Joliet	George Lynn	Joseph Walyer
Lafayette	Levi Walder	S. D. Graham
La Salle	Joseph R. Hall	
Linn	Herman Dupont	Albert J. Armson
Manola	William Densmore	James McNamara
Mariska	Silas H. Hunter	Charles A. Tyler
Maruba	George Arnold	Alva W. Smith
Matoa	E. J. Rae	Frank McDonald
Marina	Gavin A. Brown	A. H. Meldrum
Masaba	L. F. DeMay	John Cowley
Maritana	John McLaughlin	Thomas McKenzie
Mariposa	W. W. Tyler	John Hutty
Maricopa	F. A. Smith	Daniel D. Hayward
Mataafa	John Reed	Charles Wiltoncox
Mauna Loa	Frank Harringer	John Hall
Malietoa	T. Treleaven	William J. Baird
Mather	George McLaughlin	John Hoff
McDougall	James Wilson	William J. Davidson
Morse	E. W. Fox	H. McLeod
Neilson	A. P. Williams	Walter T. Smith
Poe	William Most	J. A. McPhee
Palmer	August Dumars	
Princeton	M. Toner	Bernard Cassady
Queen City	F. G. Carey	Ray T. Snyder
Rensselaer	John F. Walsh	A. J. Dwyer
Rockefeller	Thomas Kelly	Frank Sweeney
Roman	S. A. Wells	William Dornbrook
Saxon	F. A. Steadley	E. H. Pelton
Siemens	Duncan McVicar	Charles B. Culver
Stephenson	S. W. Armstrong	William Morrow
Superior City	Frank Schwartz	James D. Stewart
Thomson	J. H. McGlenn	Eugene Gunther
Trevor	Walter J. Harsant	John Marz
Van Hise	W. J. Gervin	Harry Flood
Watt	Arthur W. Armson	H. E. Schmidt
Wawatam	William P. Tindall	W. B. Clarke
Willson	C. A. Fletcher	John A. Larmer
Wolvin	E. E. Stimson	W. D. Killett
Zenith City	R. W. Hunter	Andrew Jackson

Marine Insurance.—Subrogation.—A marine insurance company, which pays a loss due to the wrongful act of another, is subrogated to the rights of the insured, and may, in the name of the insured, for its use, prosecute a suit against the wrongdoer and reimburse itself, especially where the policy provides that the insured shall assign to the insurer such right of action. Evans vs. British & Foreign Marine Ins. Co., 61 N. E. Rep. (Ill.) 1081.

Seamen.—Settlement on Discharge.—Conclusiveness of Statutory Release.—Under the provisions of Rev. St., Sec. 4549, 4552, requiring seamen to be discharged and paid their wages before a shipping commissioner, in whose presence a mutual release shall be signed and attested by him, if the parties agree upon a settlement, and further providing that "such release shall operate as a mutual discharge and settlement of all demands for wages between the parties thereto on account of wages in respect of the past voyage or engagement," a release so executed and attested without fraud or coercion is conclusive on the parties. Pettersson et al., vs. Empire Transp. Co., 111 Fed. Rep. (U. S.) 931.



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SHIP BUILDING IN CANADA.

Mr. John Bertram, president of the Bertram Engine Works Co., Toronto, who have already built some of the finest steamers on our inland waters, under date of January 7th, addressed the following open letter to the Minister of Customs at Ottawa:

Dear Sir.—I have the honor to acknowledge the receipt of your favor of the 21st, ult., in which you say that no permission was given by your department during the season of 1901 for American tugs to tow rafts in Canadian waters, contrary to the provisions of the coasting regulations.

I understand that permission was granted to certain American tugs to tow Canadian logs in Canadian waters in 1900, and am glad to learn that this permission was not continued in 1901. Notwithstanding this, however, United States tugs, some openly and some covertly, did, against the law, participate in the towing of Canadian sawlogs from one Canadian point to another. Particulars need not be given, as the facts can easily be verified on inquiry by your own officers. The methods by which tugs under United States registry took part in this Canadian work are known to many people having interests on the Georgian Bay and Lake Huron. It is also well known that for years American tugs have been allowed to do work on the Canadian side of the river at Sarnia, and, further, at least one tug, while under United States registry, obtained quite recently from a British Consul resident at an American port a certificate of some kind, allowing it to tow logs in Canadian waters, contrary to the provisions of the coasting regulations.

You are no doubt aware that on account of the action taken by the Ontario government in compelling all sawlogs cut on Crown lands in the province to be sawn or otherwise manufactured in Canada, the business of towing sawlogs from one Canadian port to another has greatly increased within recent years, and whether this work is to be reserved for Canadian tugs alone is a matter of some importance. No Canadian tug or other vessel is allowed, under any pretext whatever, to participate in the coasting trade of the United States, and if they attempted such a thing, or gave the officers there the slightest excuse, would be promptly seized. Now, if American tugs have exclusively reserved to themselves all coasting privileges in United States waters, and at the same time are allowed, either by permit from Canadian authorities, British Consul, or by reason of our customs officers not watching for infractions of the law, to share in our work, it would be so manifestly unfair and one-sided that the building up of a Canadian marine could hardly be expected. Instances could be given to show how this state of things affects vessel-owners and shipbuilders. In 1900 a party was negotiating for the building of one of the most powerful tugs on the lakes, but by reason of the foreign tugs being allowed to tow Canadian logs the negotiations fell through. At the present time, if assured that no interference by American tugs will be tolerated, the construction of powerful Canadian tugs, fully equipped for towing logs, would at once commence, but until this assurance is given there is little inducement for anyone to invest in that class of property.

Steel shipbuilding in Canada is carried on at present under some disabilities. For instance, British-built vessels, fully equipped, can come in here free of duty. This cannot be complained of, as it is part of the Imperial policy of the empire, but in the building of vessels in Canada every item entering into the construction, whether of the hull or the machinery, that is manufactured in any part of the Dominion is dutiable at the ordinary rate. It is true a small amount is allowed per registered ton by the Dominion government in the way of draw-back on duties, but the amount is quite inadequate to equalize conditions as existing between the British and Canadian shipbuilder. Were it not that a design and type of vessel better suited for inland waters has been evolved here with a larger and more economical carrying capacity per ton of displacement than anything built on the Clyde, then Canadian shipyards would not be in the competition.

Turning to the United States side of the question, it is well known that they will not admit any foreign-built vessels to registration in their ports, while in Canada foreign-built boats are allowed to enter in, paying merely the nominal duty of 10 per cent. on hulls and 25 per cent. on machinery. If the entry were confined to new vessels only, and the valuation that of the American selling price, there would be no complaint, as Canadian shipyards are quite able to compete both in quality and price with any yards in the United States; but as a matter of fact, entries have been confined to old boats, difficult to value, and so the duty collected has been only nominal in amount. So with British boats free, American boats with only a nominal valuation, their freighters occasionally granted a permit to share in our coasting trade, and their tugs, within or without the terms of our regulations, coming here to share in our coasting work, it is a wonder that any new vessels are built in Ontario to ply in the international waters. A great impetus has been given lately to Canadian inland transportation by the general improvement of business, the increasing quantity of grain seeking the seaboard, and the carrying of iron ore, coal and lumber. Apart from the question of ocean-going vessels or the need of a fast Canadian service to Great Britain, if it is considered desirable that a well equipped and creditable Canadian marine should exist on the Great Lakes, then two conditions seem necessary. First, Canadian shipbuilders should be placed on a footing of equality with British shipbuilders. How this should be done is within the purview of the policy of the present government. A beginning has been made already by granting a small draw-back on new tonnage, and it only requires to go a step further and make is such an amount as would equalize conditions between shipbuilders here and in Great Britain. Second, there seems no other way of stopping our sharp and ingenious friends on the other side of the lakes from having us at a disadvantage except by strictly carrying out our own law with regard to coasting regulations; and, further, by taking a leaf out of their own book and forbidding the registration of any American-built vessel in a Canadian port. This may, to some people seem drastic, but it cannot be considered unfriendly, as it simply follows their own example.

I beg to submit these matters for your consideration, believing that they are of some importance not only to the vessel owners and shipbuilders of Canada, but as a means of continued progress and the advancement of our best interests.—Canadian Manufacturer.

EASTERN FREIGHTS.

Messrs. Funch, Edye & Co., New York, report the condition of the eastern freight market as follows:

Whilst the number of transactions effected during the present week show an increase over the previous period we are unable to report any actual improvement in rates, and the general market can best be described as sluggish.

The demand for cotton tonnage from the South Atlantic is very spasmodic, and fluctuates according to the rise and fall in prices, but there is very little anxiety exhibited on the part of the shippers to take up steamers for future loading.

The coal situation is still restricted, owing to the shortage of railroad cars, and this accounts for the limited number of charters reported.

A few steamers continue to find employment from the Gulf timber ports, but if anything the supply of tonnage is now in excess of the demand. For cotton and general cargo from the Gulf, the regular line boats appear to be sufficient to meet present wants.

With the exception of a little inquiry for case oil tonnage to the east for future loading, at somewhat improved rates, we find the market for sailing vessels still characterized by inactivity.

A large force of men is at work making extensive improvements to the coal loading machinery at the Short Line docks at Sandusky. A telescope device has been added to the car dumping machinery, similar to that in use at Fairport, and it is now claimed that the facilities are as rapid as any on the lake.

LITERARY NOTICES.

A clear presentation of the Isthmian Canal question will appear in the February Scribner's from the pen of W. H. Burr, the eminent engineer and professor at Columbia College, who is a member of the United States Commission. The author presents the advantages and disadvantages of both the Nicaragua and Panama routes and sums it all up in the sentence: "In view of the unreasonably high price put upon their rights and property by the Panama Canal Company the Nicaragua route must be taken as the most 'practicable and feasible' for the construction of a ship canal by the United States government."

The February Century is to contain two articles, with illustrations, on the new scheme for beautifying the City of Washington; and another important feature in the same issue is "A Visit to Mount Vernon a Century Ago," containing conversations with General Washington as recorded in the diary of a Polish poet attached in this country to the suite of Kosciuszko.

An attractive pamphlet full of information is that published by Mr. Royal E. Burnham, attorney-at-law and solicitor of patents, of Washington. The brochure is devoted to the subjects of patents, trade-marks and copyrights, and the title page indicates that the text describes "What May Be Patented," "The Process," "The Cost." The pamphlet teems with useful information and pertinent advice. It will be of value to inventors and those who wish to register trade-marks and secure copyrights. The little book may be add on application to Mr. Royal E. Burnham, Bond Building, Washington, D. C.

LAUNCH OF THE WESTERN STATES.

The Western States, the new Detroit & Buffalo line passenger steamer, was successfully launched at the Wyandotte, (Mich.) yards of the American Ship Building Co., on last Saturday. This steamer is the sister ship of the Eastern States which was launched at the same place about a month ago. Manager W. C. McMillan and a large party of friends went to the launching from Detroit on private electric cars.

The Western States will have a passenger capacity of 3,500. The staterooms will be in two tiers and will number 250, including twelve parlors. All the staterooms will have hot and cold water and telephone connection with the other parts of the ship and with Detroit and Buffalo when the steamer is in port. It is expected that both the Western States and Eastern States will go in service at the opening of navigation this year. The dimensions of the steamers follow:

Length over all, 366 feet; length of keel, 351 feet; beam, 45 feet; breadth over guards, 80 feet; depth of hold, 19½ feet; draft of water, 12 feet. The machinery of each boat will consist of an inclined compound engine, having three cylinders. The cylinders will be 52, 72 and 72 inches by 7 feet stroke, indicating 5,500 horse power. Steam will be supplied by six cylindrical steel boilers, each 13 feet 6 inches long by 11 feet 9 inches in diameter, and having a total grate surface of 275 square feet, and a total heating surface of 12,650 square feet. They will be worked with the Howden hot air system. The consumption of bituminous coal will be 9,000 pounds per hour.

The paddle wheels will be equipped with feathering buckets. Each wheel will be 25 feet in diameter and will have nine buckets, each 13 feet long by 4 feet wide, dipping, at normal draft, 5 feet. The speed calculated is 21 miles per hour.

The gross tonnage of the ships will be 3,100 and the net tonnage 1,600. There will be 212 main staterooms and sleeping accommodations for close on to 1,000 persons.

The Hohenzollern, on which Admiral Prince Henry, the Kaiser's brother, will come to this country, is counted the finest royal yacht afloat. She is also the fastest, having done 22 knots. The furnishings are simply magnificent. The Hohenzollern has three four-inch quick-fires, more for saluting purposes than anything else.

HONOR WHERE HONOR IS DUE.

When the American Society of Mechanical Engineers met in New York last month a portion of the members took part in the unveiling of a monument to Robert Fulton, which was erected in honor of the reported inventor of the steamboat. There are many men whose memory is revered for achievements they did not perform—they constitute a whole army of shams, but none of them has received so much undeserved praise as Robert Fulton.

When we reflect upon the honors heaped upon an engineering charlatan like Fulton, we naturally survey the work done by others credited with great inventions and we are almost inclined to exclaim, "the awarding of fame is a delusion." We think of James Watt, the improver of Newcomen's steam engine, and find his name accorded the highest honors as the inventor of the steam engine. We move forward a few years and come to the name of George Stephenson, who is called the "inventor" of the locomotive. When the claims that Stephenson invented the locomotive are closely analyzed and scrutinized we find that no proof exists of Stephenson having invented anything of value that improved the locomotive. His first engine was an inferior imitation of one built by William Hedley, and all the subsequent improvements were the work of other inventors.

But Watt and Stephenson did great work which entitled them to the admiration and gratitude of mankind. Watt, by his wonderful inventive ability and engineering intuition, converted a crude, slow-moving, irregular-acting machine into a perfected engine that was capable of giving steady motion to the most delicate forms of machinery.

George Stephenson was deficient in inventive attributes, but he had the faculty of knowing a good thing when he saw it, and he perceived that railroads would at some time become the principal means of land transportation. He also clearly saw, long before others did, that a form of portable steam engine would be the future motive power of railroads. Stephenson was a good representative of the best type of Englishman. Opinionated and ever pushing his opinions with bulldog persistency, he made weaker minds yield to his views on railroads and locomotives. That was his hobby and he rode it so furiously that the British world was drawn along by induction against its will very often. Stephenson by his vigorous personality and convincing arguments prevailed on British capitalists to construct a railroad for passenger business. Against great odds and violent opposition he induced them to try locomotives for motive power, and thereby gave his native country the honor of originating steam-operated railroads at the moment when America was almost ready to grasp the prize.

Watt and Stephenson both performed work that entitles them to higher honor, but Fulton did nothing but act as a draftsman to put other men's ideas on paper. Being a painter by profession, he became without difficulty a skillful draftsman when he devoted his attention to engineering. A great many inventors had worked on the problem of propelling boats by steam before Fulton's time; and it was only through want of financial support that some of them failed in attaining commercial success. As early as 1690, Pepin, a celebrated French savant, who is credited with inventing the boiler safety valve, proposed using steam to propel vessels. He built a small experimental vessel for the purpose, which was destroyed by a mob of boatmen who saw in the embryo steamboat a dangerous rival of their business. In 1736, Hull took out a patent in England for a steam-propelled boat. In 1752, the French Academy of Science awarded a prize for the best essay on the manner of impelling vessels without wind. After that European scientific journals frequently published articles on steam propulsion of vessels. That agitation of the subject brought into the field inventors in France, Great Britain and the United States who performed the preliminary work of designing a practical steamboat.

The most successful among those inventors was John Fitch, a Connecticut mechanic, who built several steamboats which worked successfully. Failing to obtain the help in the United States for pushing his steamboat enterprises, Fitch went to France, which Americans were at that time in the habit of looking to for aid in all kinds of schemes. He did not reveive the expected encouragement and returned to America, leaving with the American consul at Havre the plans of what he considered the best form of steamboat. These afterwards fell into the hands of Robert R. Livingston.

A few years afterwards Robert Fulton entered the steamboat field. He was much more fortunate than his predecessors and contemporaries in securing influential and financial support. Robert R. Livingston, who had been for years American Minister to France took a warm interest in the work done to apply steam to boat propulsion. He met Fulton in Paris, where schemes for steam propulsion were rife, and finding Fulton very skillful in sketching the mechanical appliances developed by the various workers in the steamboat field, took Fulton under his powerful influence. Livingston had secured from the Legislature of New York a grant of the exclusive right of using steamboats on the navigable waters in the neighborhood of New York City and he was determined to reap the benefits from the privilege conferred.

Livingston sent Fulton to New York provided with drawings and models of the most approved steamboat machinery and also sent him a Watt engine and boiler suitable for use in a steamboat. Fulton made no progress with boat or machinery until Livingston returned to New York. The personal energy of Livngston was immediately thrown into the steamboat building scheme and a successful boat was soon ready for business. The success of the "Clermont" is popular history.

Livingston was all to Fulton that Boulton was to Watt and a great deal more, for he not only provided the necessary capital, but the greater part of the energy and much of the engineering acumen. Fulton acted as superintendent for Livingston and secured all the honor and not a small part of the profit.—Railway and Locomotive Engineering.

GOOD EARNING ABILITY.

As bearing on the money making abilities of the large schooners now generally used in the coasting trade and which had their origin in Boston and New England, some figures which have been compiled by Mr. Frank N. Tandy, general marine agent, of Boston, will be of interest. Mr. Tandy has taken the statements of four large schooners, two four masters and two five masters, which have been used in the Atlantic coast trade and in a very full table, clearly shows that vessels of this type are capable of earning, even when freight rates are as low as they are at present. Vessel No. 1 made 12 voyages, consuming 512 days to date. It paid dividends from $16 to $84 per 1-64 each trip, the total for the twelve trips figuring up $442 per 1-64 and she paid 38.8 per cent. of her cost in that time. The vessel cost $72,960, gross tonnage is 1,904 and her carrying capacity is 3,000 tons. The three other vessels from whose statements data are compiled paid from $12 to $100 per 1-64 each trip and the average for the fleet shows a dividend of $33 per 1-64 each trip and a yearly profit of 27.5 per cent. on the investment to the owners. The net earnings have so far averaged 42.9 per cent. of the gross receipts and 18.9 per cent. of the total cost of the vessels has so far been paid.—Boston Commercial Bulletin.

The engine and boiler have been removed from the steamer Lawrence at Manitowoc preparatory to cutting her in two and increasing her length thirty-six feet. The engine is to be steeple compounded at the Hodge works at Detroit. When replaced both engine and boiler will be moved ahead ten or twelve feet.

WINTER MOORINGS.

A 32-page booklet showing where about 2,000 vessels are laid up for the winter. It gives steamers, schooners and barges and a list of tugs as well as a list of the vessels which were lost last season and is quite reliable, being taken from correspondence at the various lake ports. Copies sent by mail prepaid on receipt of 25c. The MARINE RECORD Publishing Co., Western Reserve Bldg., Cleveland, Ohio.

HOME DEVELOPMENT.

To the Editor of The Marine Record:

Chicago has two delegations in Washington to obtain government aid to survey a deep waterway from the drainage canal to the Mississippi river. Deepening the canal from Toledo to Cincinnati and improving the Ohio and Mississippi rivers would confer vastly greater benefit to the Great Lake country than the Chicago project. The richest 200 miles of coast line in this country is on the south shore of Lake Erie. Steel can be made cheaper in said section than anywhere else. Deep waterways from Lake Erie to the tide water would confer vastly more benefit to this country in peace or war than any Isthmian canal could possibly do.

The bills providing for an Isthmian canal should be amended by substituting deep waterways from lake to tide water—one canal from the head of the lake to the Ohio river at Cincinnati, and the other from the outlet of said lake to the Hudson river. JEFFERSONIAN.

ALTOGETHER there are thirty-two vessels of various types launched for the British navy during the year 1901. They included six first-class battleships, ten first-class cruisers, three sloops, two shallow draught gunboats, two destroyers, four torpedo boats and five submarines. The losses were the cruiser Sybille in Lambert Bay, near the Cape of Good Hope, the turbine destroyers, Viper and Cobra, and the revenue cutter Active. Another feature of the year has been the trials of the Minerva and the Hyacinth, and the issue of the Boiler Committee's report condemning the Bellevilles. The London Telegraph regards the naval construction of the year as a disappointment, and is not very well satisfied with the outlook for 1902. "The program of new construction," it says, "was not only unusually small, but has not even been commenced. It provides for three battleships, six armored cruisers, two third-class cruisers, ten destroyers, five torpedo boats, and five submarines. Not one of the larger vessels has yet been laid down, and this means the loss of a full twelve months in their construction, and at a time, too, when up to date warships are so greatly needed."

REAR ADMIRAL BRADFORD, Chief of the Bureau of Equipment of the Navy Department, is convinced that wireless telegraphy will soon reach a stage of perfection that will warrant its use in the navy. Holding this view he has recomended that all of the vessels now in the course of construction for the navy be supplied with an extra topmast to be used for telegraphy. Admiral Bradford does not believe, however, that any system of wireless telegraphy has yet been so perfected that it could immediately be used by the navy. Experiments are being conducted under his direction with all of the systems generally known, and a retired officer, who is considered well qualified to determine the relative merits of the various systems, is now in Europe in the interest of the Nvy Department to report the results attained in the tests being made by foreign navies with wireless telegraphy. For obvious reasons the Navy Department is unwilling to divulge the name of this officer, but hardly a week passes but that a most interesting report is received from him.

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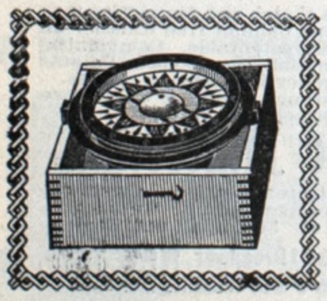

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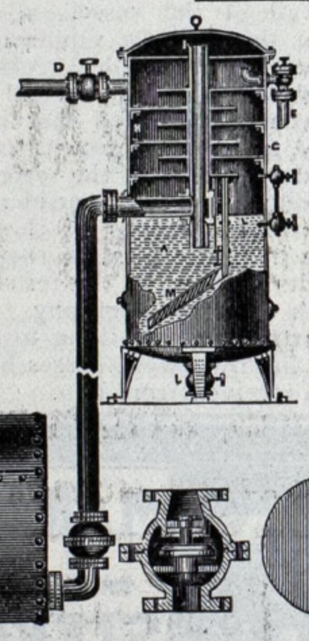

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Minnesota Iron Co.'s steamer Presque Isle.

American Steel Barge Co.'s steamer Alex. McDougall.

Lake Michigan & Lake Superior Transportation Co.'s steamer Manitou.

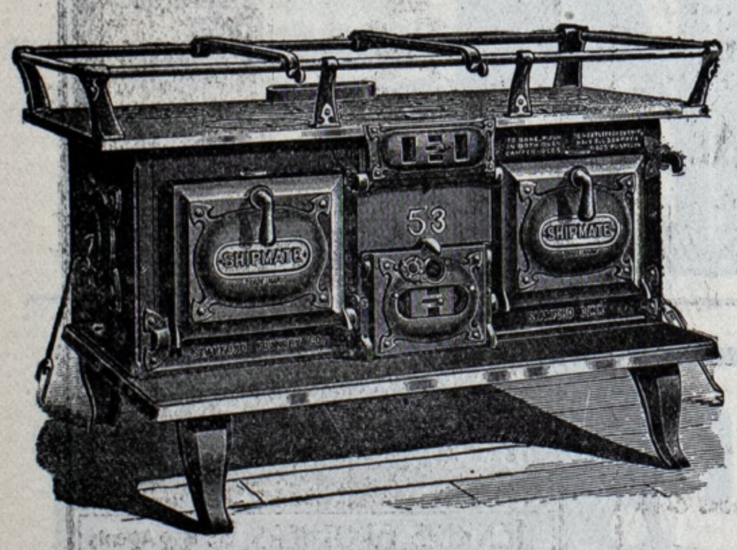
Bessemer Steamship Co.'s steamers S. F. B. Morse and Douglas Houghton.

American Transportation Co.'s steamers John Harper and Alex. Nimick.

Red Star Line's steamers Robert Mills and Wyoming.

Wilson Transit Line's steamers W. D. Rees and Andrew Carnegie.

And the steamer William R. Linn.



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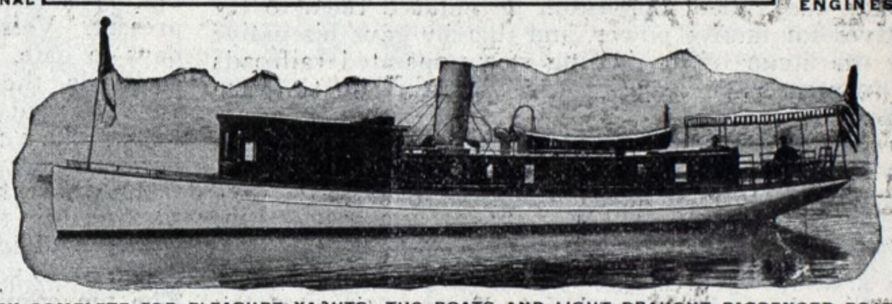

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FLOTSAM, JETSAM AND LAGAN.

Capt. Samuel Neff, of Milwaukee, has let a contract to Johnson Bros., of Ferrysburg, Mich., for the construction of a Scotch type boiler to be placed in the steamer W. P. Ketcham. The boiler will be a duplicate of the one in the steamer Pentland, about thirteen feet in length and diameter.

The keels have been laid for the two 600-foot London and New York passenger liners to be built by the Maryland Steel Co., at Sparrow's Point, Md., for the Atlantic Transport Co. They will be twin-screw steel vessels, with a length of 600 feet, a breadth of 65 feet and a depth of hold of 44 feet. They will register 13,750 tons, which is 2,000 tons greater than the St. Louis or St. Paul. First-class passenger accommodations will be made for 250 persons. The vessels will fly the American flag.

The submarine torpedo boats Pike and Grampus, which have been building at the Union Iron Works, San Francisco, for the United States Navy for some time, are now nearly completed and it is expected they will be launched about the first of the coming month. Their trial trips, both submerged and on the surface, are scheduled to take place a few days later, as the boats will be practically completed and ready for service when they are launched. The transport Thomas, which has been undergoing repairs at the Union Iron Works for the past two weeks has returned to the transport docks. Work is progressing on the transport Sherman and it is expected she soon will be ready for service.

Orders were received at Conneaut on Wednesday to lay up the car ferry Shenango, that runs between Conneaut, O., and Port Stanley, Ont., for the remainder of the winter season. This tie up, which is the first in the history of the steamer, was induced by the great difficulties that the vessel has experienced in the past few days with the slush ice that has formed along the southern shore of Lake Erie. The steamer has no difficulty cutting her way through the ordinary ice, even where it reaches a depth of two or three feet, but where the slush ice forms it rolls under, often forming ice of twenty feet in thickness. The vessel had a large tonnage of advance orders for shipments to Canada.

ALGOMA COPPER MINES.

Concerning the relative quantity and value of copper in Algoma and in the west, Thomas H. Harvey, secretary of the Superior Copper Co., says in the Sault News Record:

"In the first place, the known copper deposits in the Algoma district are as large, if not larger, than the deposits at Butte, Mont., the vein of the Superior Copper Co. having already proven to be one mile long and forty feet wide. This is larger than any single company operating at Butte. The fact of John J. Case identifying himself with the district to the extent of erecting a large smelter at Rock Lake, at which it is proposed to handle custom ore, has given an impetus to copper mining in Algoma.

"There are several other reasons why the copper mines of Algoma will be attractive mining properties, one of which is the comparison of copper, gold, and silver values carried in Algoma ores to that carried in the ores of Montana, Arizona, Utah, the Anaconda, which is the largest copper producing mine in the world, averages 4.28 per cent. copper, twenty cents gold, and $1.50 silver per ton. In Arizona, Senator Clark's United Verde mine, located at Jerome, produces 6 per cent. copper, gold $1.00 and silver $3.00 per ton. The Arizona copper mine at Clinton, Arizona, produces 4 per cent. copper, no gold or silver. The Boston Consolidated at Bingham, Utah, produces 3¾ per cent. copper, $1.00 in gold and $1.00 in silver per ton. The Mountain Copper Co., at Keeswick, Cal., during the last six months of 1901 produced copper of about 3 per cent with no gold or silver values.

"The Superior copper mine in the Algoma district will average 6 per cent. copper, $1.00 in gold and from $2.50 to $5.00 in silver per ton, and the Rock Lake will average about the same as the Superior.

"The Bruce mines will average about 3½ per cent. copper and carry small values in gold and silver. The Oxford Copper Co.'s properties at Massey will average 5 per cent. copper and carry gold and silver values.

"Another very important point in favor of the Algoma district is that the average wages in the western mines is $3.50 per day while in Algoma it is $2.00 per day."

Government Proposals.

TREASURY DEPARTMENT, U. S. Life-Saving Service, Washington, D. C., January 20th, 1902. Sealed proposals will be received at this office until 2 o'clock p. m., of Tuesday, February 4, 1902, and then publicly opened, for the construction of foundations, retaining walls, etc., for a life-saving station at Buffalo, New York. Specifications and drawings, forms of proposal, etc., can be obtained upon application to the Superintendents of Construction of Life-Saving Stations, 17 State Street, New York City; to the Superintendent of the 10th Life-Saving District, Custom House, Buffalo, New York; to Assistant Inspector 10th and 11th Life-Saving Districts, Room 204 Postoffice Building, Detroit, Michigan; to the Keeper of the Cleveland Life-Saving Station, Cleveland, Ohio, or to this office. S. I. Kimball, General Superintendent. 4.

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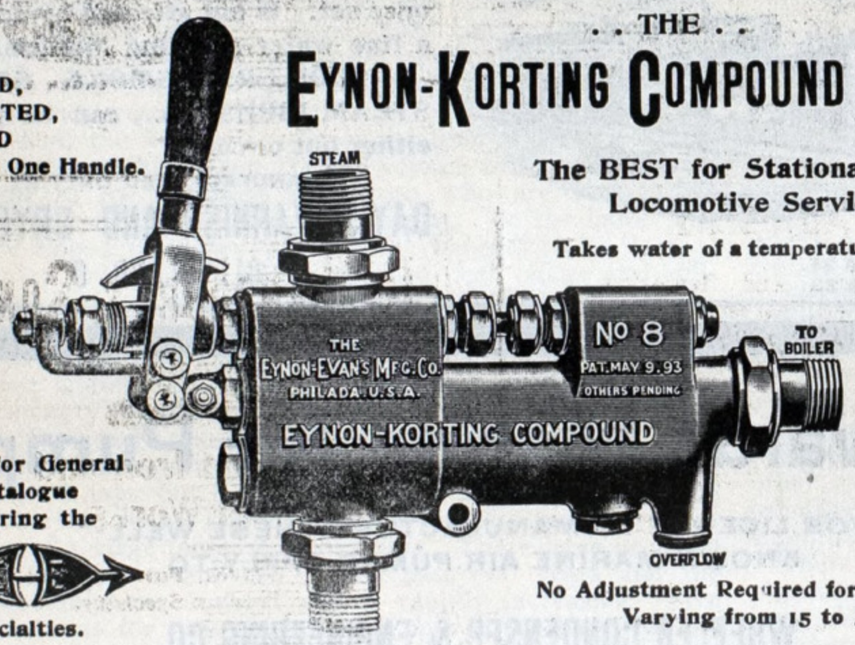

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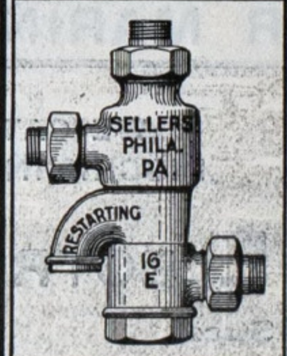

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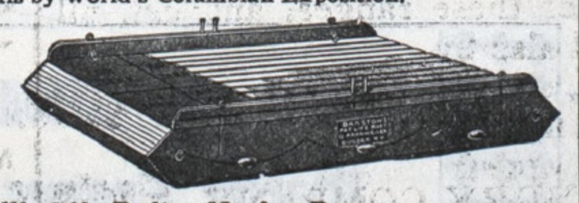

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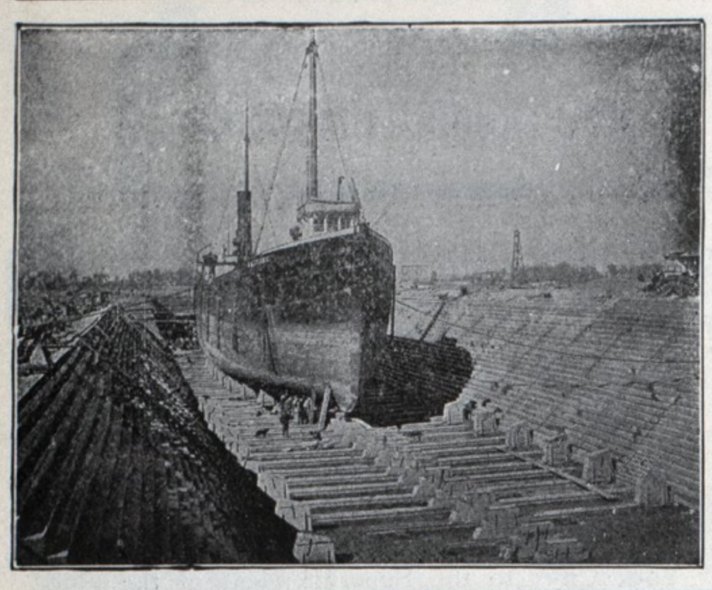

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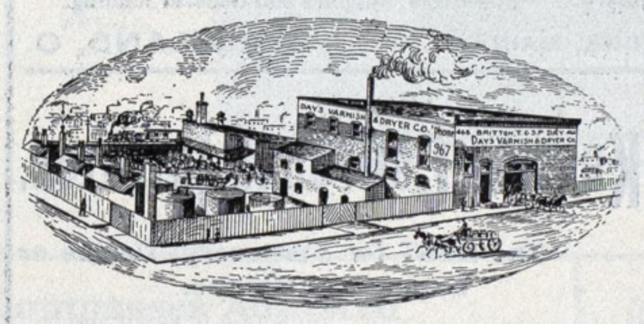

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